The Oil and Gas Journal

PRODUCING REFINING ENGINEERING MARKETING

VOL. 28. NO. 50. TULSA, OKLAHOMA, MAY 1, 1930

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Company _____
Address _____
City _____
State _____

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Upward Curve Persistent in April

Highest daily average estimated total production in 1929, week ended Aug. 24, 2,975,435 bbls. Lowest in 1929, Dec. 27, 2,595,320 bbls.

Another Increase in Crude Oil Production Calls for Warning Against Over-Supplying Good Market

By James McIntyre

Highest daily average estimated light oil production in 1929, week ended Sept. 14, 2,534,524 bbls. Lowest in 1929, Apr. 13, 2,142,036 bbls.

An increase of 13,442 barrels per day in the production of crude oil in the United States would not be serious if it were not for the fact that in the previous week a 7,782-barrel increase was noted, and that in most of April there was a tendency to produce a little more than in the week before. Up to and including April 26, we have produced 301,761,299 barrels this year, according to the weekly estimates of The Oil and Gas Journal, or 2,601,390 barrels per day, and at the rate of 949,507,350 barrels per year. This is more domestic crude than will be needed if we are to get rid of a part of the burden of crude stocks on hand in the various producing divisions of the United States, and too much production to bring about much better prices.

Producers are cautioned against permitting the production curve to continue upward, and wherever proration is being resorted to, special care should be taken to avoid excess output. New pools must be carefully developed. Deep zones in Kansas, Oklahoma, Texas and California are a constant threat wherever a drilling well is directed for the "deepest known producing horizon." This is illustrated by the recent deep sand discovery in the Voshell Pool in Kansas and the Graham Pool in Young County, Texas, and more recently in the North Belridge Pool in Kern County, California. Western Kansas, Central Oklahoma, the Texas Panhandle and several areas in California are a constant menace to the balance between supply and demand.

Current production in the United States is 67,589 barrels below that of the same week last year, but it is not low enough to measure down to the estimated production demand as set forth by the Committee on Petroleum Economics appointed by Secretary Wilbur.

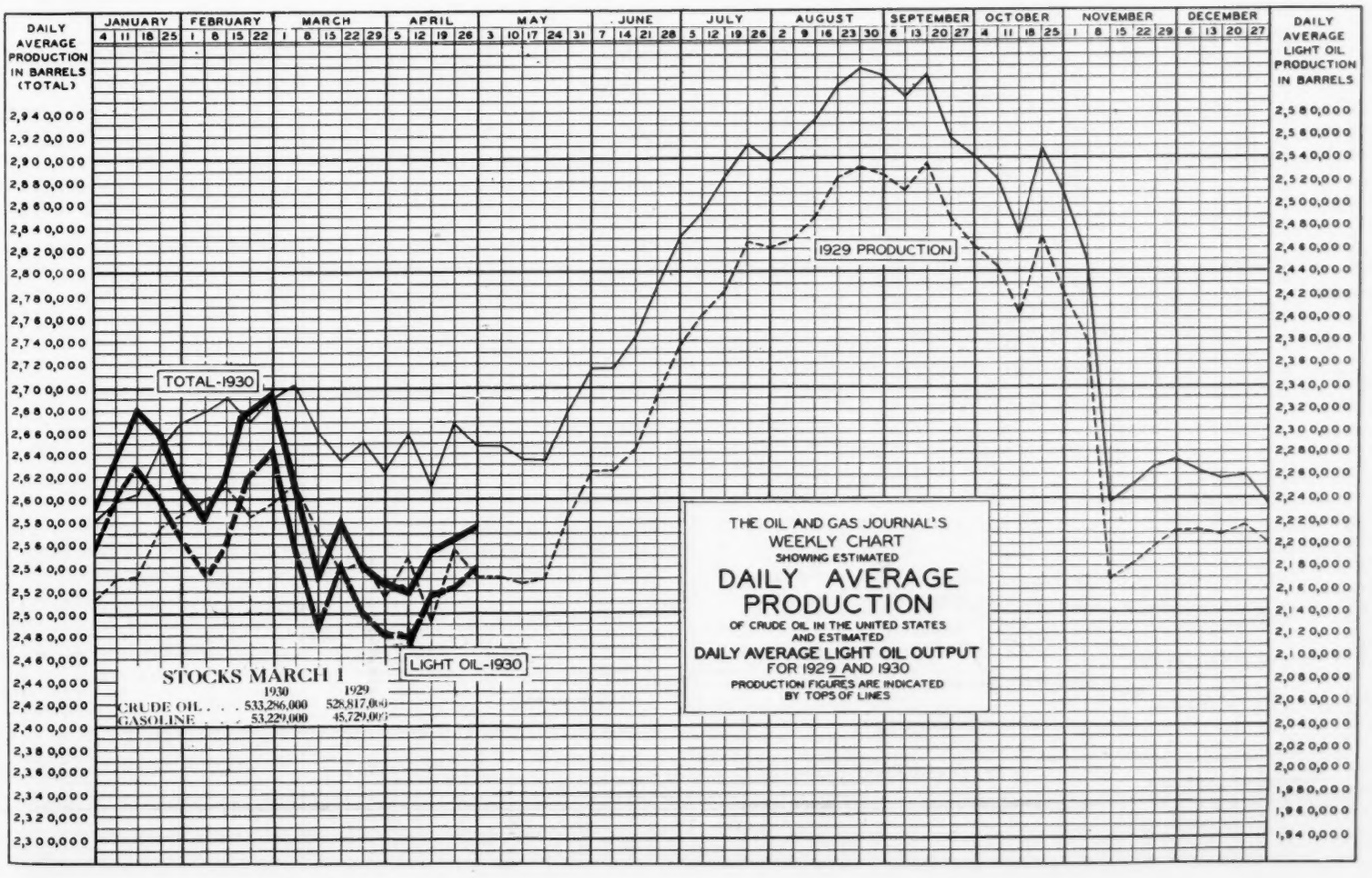
Producers have a healthy outlook if they don't jeopardize it by an injudicious production policy. The demand for crude oil is good and is gaining, and in the financial centers of the East as well as in the oil country the feeling is in the air that better prices are imminent, but this optimism is based on the proposition that production will be kept in line with demand.

PRODUCTION IN THE UNITED STATES

Estimated daily average production of light and heavy gravity oil in the United States for week ended April 26 and a comparison with the previous week follows:

	April 26		April 19	
	Light	Heavy	Light	Heavy
Oklahoma—				
Oklahoma City	109,140	.....	104,105	.....
St. Louis-Pearson	37,420	.....	38,760	.....
Seminole	219,085	.....	226,040	.....
Northern miscellaneous	239,380	.....	232,385	.....
Southern fields	56,175	.....	55,975	.....
Total Oklahoma	661,200	.....	657,265	.....
West Texas—				
Hendricks	79,440	.....	80,295	.....
Yates	117,510	.....	116,505	.....
Remainder	118,665	.....	116,843	.....
Total West Texas	315,615	.....	313,643	.....
North Louisiana	36,775	5,215	36,230	5,300
Arkansas	17,635	40,290	17,270	40,535
North Central Texas	140,524	.....	143,264	.....
Texas Panhandle	95,475	.....	93,820	.....
East Central Texas	35,497	.....	34,706	.....
Kansas	125,250	.....	116,880	.....
Total Mid-Continent area	1,427,971	45,505	1,413,078	45,835
Gulf Coast	.....	201,500	.....	203,149
Southwest Texas	.....	64,059	.....	66,835
Eastern	139,000	.....	136,000	.....
Rocky Mountain area	74,185	.....	77,881	.....
California—				
Santa Fe Springs	131,000	.....	131,000	.....
Long Beach	98,750	.....	98,500	.....
Huntington Beach	28,500	.....	29,000	.....
Elwood	48,000	.....	48,000	.....
Ventura Avenue	46,000	.....	44,000	.....
Seal Beach	23,750	.....	24,000	.....
Remainder of State	165,000	86,500	162,500	86,500
Total California	541,000	86,500	537,000	86,500
Total United States	2,182,156	397,564	2,163,959	402,319
Grand total	2,579,720		2,566,278	

Total Increase, 13,442 Bbls.; Light Oil Increase, 18,197 Bbls.



Little Activity in Refined Market

Spot Business Dull in Practically All Oklahoma Products. Coal and Fuel Oil Feeling Natural Gas Competition

By C. O. Willson

A general dullness was apparent in the Oklahoma (Group 3) market over the past week, a condition which was general at most inland refining centers throughout the entire country.

In the Oklahoma list of refinery products there did not appear to be an active product. The price ranges for the most part remained the same with the exception of fuel oils which are generally lower, but scattered sales under the market were reported in practically all products.

Spot trading in refinery gasolines was exceptionally dull. The prices quoted by most refiners for U. S. Motor gasoline continued at 7 to 7½ cents but some material was sold under the low of this range. As explained in these columns last week the heavy purchases of late March and early April in anticipation of higher prices has brought a reaction in which there has been relatively little new buying. Some U. S. Motor gasoline was shipped North out of the group unsold. This accumulated on tracks in Chicago and other points and in a few cases the consignor was forced to sell as low at 6½ cents basis Group 3. It is expected, however, that this class of distress material will be off the market before the end of the week.

The 60-62 U. S. Motor appeared to be in better shape than the regular grade and although the demand for the higher gravities has been slow no distress sales in the 400, 390 and 375 endpoint grades were reported.

Blame Weather

The weather as well as the large speculative purchases made earlier in the month is blamed for the slowness in the gasoline demand. Some refiners with their own stations state that consumption in the Middle West due to the weather will not be as great the last half of April as it was the first half. This situation will vary in the several states but in a few cases at least the cold and wet weather has unquestionably reduced the demand over the past 10 days.

Gas Competition

Concern regarding the competition of natural gas in fuel oil sales is being heard from an increasing number. Coal operators appear to be even more alarmed than the refiners. The coal business as a unit has had its back against the wall for several years due to competitive conditions both within and outside the industry. Profitable operation has been largely confined to small areas where a large demand was available near the mines. This local territory is now being invaded by natural gas. The situation in St. Louis illustrates the results from this three-cornered competition between fuel oil, coal and natural gas and indicates what will happen at other middle western points when major natural gas lines under construction or planned are completed. Natural gas for industries has recently been made available in the St. Louis area. Although this area has cheap coal available from the large mines of southern Illinois, the gas is replacing coal at many industrial plants.

The same situation applies to fuel oil. The four refineries in the St. Louis group and many other middle western and Mid-Continent refiners have been accustomed to sell large quantities of fuel oil to industrial buyers in and near St. Louis. The business already lost amounts to several thousand barrels daily and by fall the gas company will get additional business.

The natural gas in St. Louis is being sold to industrial consumers on a sliding scale based on quantity used with a price as low as 15 cents per 1,000 cubic feet for large users. Gas at this rate can compete with fuel oil at a delivered price of from 80 cents to $1 per barrel, dependent on the B.t.u. content of the two fuels and the equipment of the consumer. Considering the freight rates of from 50 to 75 cents per barrel between Mid-Con-

(Continued on Page 146)

REFINED MARKET BAROMETER

A slightly reactionary trend in refinery tank car prices on gasoline was reported in several refining areas during the past week. The sale of month-end material in the hands of brokers and unfavorable weather conditions contributed to this development and it is expected that the market will be firmer early in the month. Additional advances in gasoline tank wagon and service station prices in eastern states were a favorable development. The establishment of a posted bulk price by the Standard Oil Co. of California at San Pedro was also interpreted as a favorable development not only in the West Coast market but also in the eastern states where large quantities of California gasoline are sold. Natural gasoline prices were generally unchanged. The kerosene domestic demand has not improved and export inquiries have resulted in little actual business. Fuel oil prices, including Diesel oil and gas oil, are firm in the East Coast and Gulf Coast areas, but in other areas the market is soft and prices lower when any changes are made. The list of lubricating oil stocks and neutral oils contains downward revisions particularly in the eastern refining groups, although prices on some of the heavier grades of Gulf Coast neutral were advanced. Wax inactive and prices lower when any changes are made.

Mid-Continent—Spot market for gasoline slow and lower prices available from several plants. Kerosene dull with minor changes in prices. Fuel oil prices lower in Oklahoma, Kansas and North Texas. Gas oil unchanged. Natural gasolines firm. Wax weak.

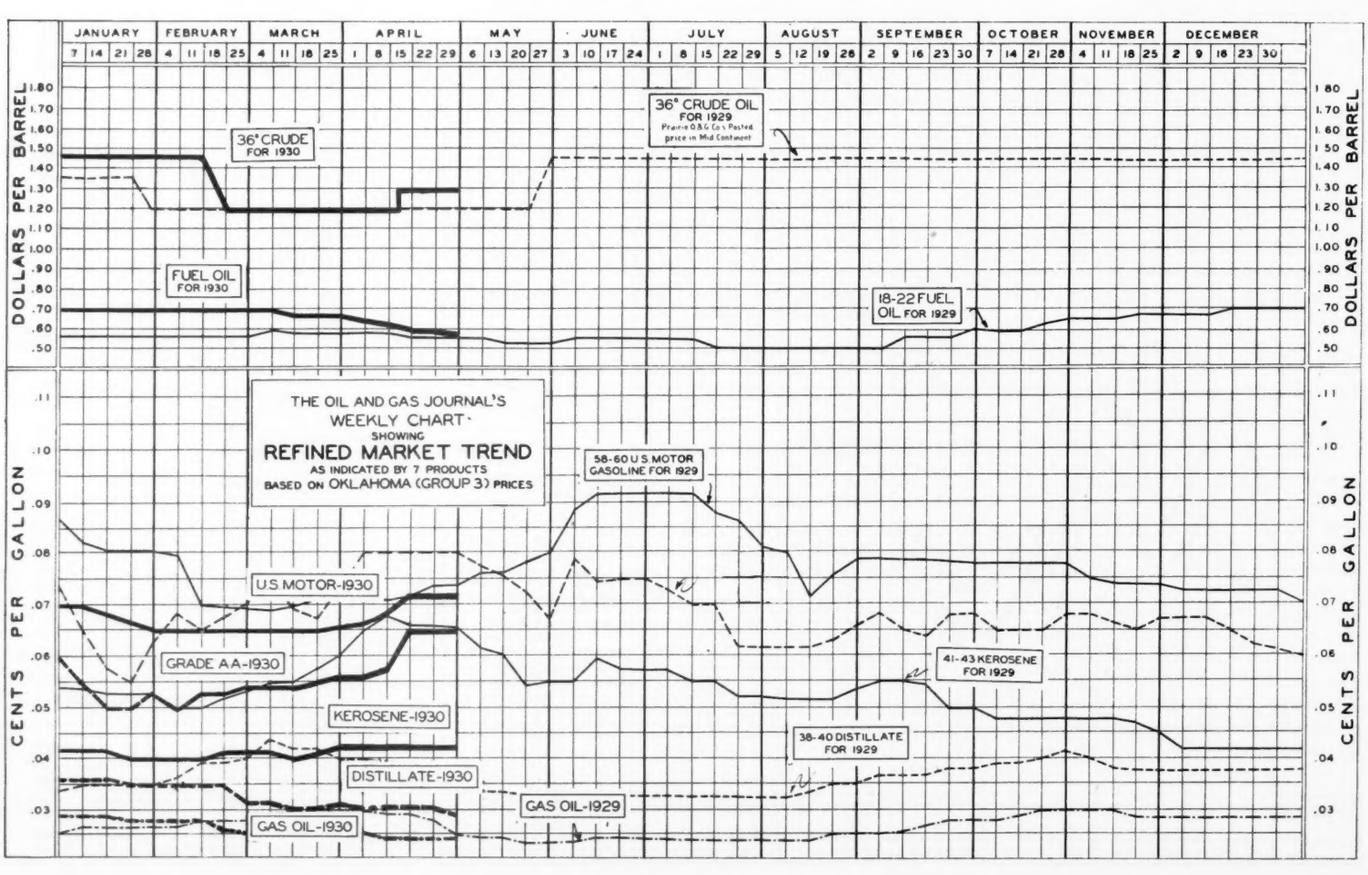
East Coast—Strength in market confined to gasoline and fuel oil. Former quoted over a wide range in prices. Kerosene demand slow and lower prices expected. Good demand for petrolatum. Cylinder stock soft and prices lower. Wax prices weaken as demand fails to improve. Gas oil weak.

Pennsylvania—Prices higher on several grades of gasoline. Kerosene lower. No important price changes in neutral oils and cylinder stocks. Wax weak.

Chicago—Distress gasoline factor in market. No change in kerosene. Better demand for gas oil. Few inquiries for industrial fuel oil.

California—Several changes made in prices. Fuel oils and distillates generally lower. Domestic gasoline prices lower. Standard Oil Co. of California establishes posted price at San Pedro for U. S. Motor gasoline.

Gulf Coast—Good demand for neutral oils and advances made in higher viscosities. Other products unchanged.



Gasoline Engine Need Fear No Substitute

C. F. Kettering Tells National Petroleum Association Its Field May Be Greatly Widened, Even Moving Trains

By C. O. Willson

CLEVELAND, Ohio, Apr. 25.—The internal combustion engine operated with gasoline can be perfected so that its place in the power field will be greatly widened with no fear of substitutes, provided the desired constituents are secured in the fuels, C. F. Kettering, president of the General Motors Research Corp., told the membership of the National Petroleum Association which opened its semiannual meeting here Wednesday.

Mr. Kettering recently referred to as "America's foremost bromide buster" and always a popular figure in the oil industry gave a most optimistic picture of the future in his address, "The Oil Industry—Its Relation to Automotive Progress," which was heard by a crowd which taxed the capacity of the Rose Room at the Hotel Cleveland.

His discussion of the properties of motor fuels was interpreted as especially significant because it indicated that his organization, which was responsible for the development of Ethyl Gasoline, the outstanding premium fuel of the industry, will continue to stress the importance of antiknock properties in motor fuels in designing new types of engines.

Mr. Kettering in his opening remarks said the development of the automotive industry was dependent on three things —rubber, alloy steel and petroleum products. The rubber industry he said had done from 65 to 75 per cent of what could be reasonably expected of it and the steel industry from 40 to 45 per cent. "We are just learning what can be done with the alloying of steel," he declared in reference to contributions by that industry.

In regard to the distribution of petroleum products, Mr. Kettering in a humorous vein said he believed the "oil industry had done about 110 per cent of what could be expected," making reference to the numerous service station facilities available everywhere.

As to the development of suitable motor fuels, Mr. Kettering said the refining industry had realized at present from 30 to 40 per cent of the possibilities.

"What you can do with an internal combustion engine is based largely on the characteristics of the fuel," Mr. Kettering declared in stressing the "structure of the fuel molecule" as a basic factor in determining the future development of the motor car industry.

Significance of Knock

In this connection he reviewed briefly the change of several years ago in the ignition systems of motor cars which brought about what was commonly known as the "spark knock." The study of this problem clearly showed the importance of knocking properties in gasolines and finally resulted in the introduction of Ethyl Gasoline by the Ethyl Gasoline Corp., owned jointly by the General Motors Corp. and the Standard Oil Co. of New Jersey. Without committing himself as to whether further changes in the constituency in motor fuels would be brought about by improved refining processes or through the use of chemicals, Mr. Kettering predicted additional improvement in quality which would enable the motor car manufacturer to improve greatly the efficiency of his motor cars with higher compression ratios and greater horsepower.

Diesel Fuel

Regarding the Diesel engine which has been receiving wide attention as a power unit for both airplanes and motor vehicles, Mr. Kettering said an internal combustion engine operated with a carbureted fuel that did not knock could be made to equal or excel any other type engine. He stressed the fact that while he was not discounting the improvements in Diesel engine design, the development of the present type motor car and airplane engine operated with gasoline "had just started" and the relatively inefficient engine of today will be improved as better motor fuels and steels permit.

The future expansion in the application of internal combustion engine power

C. F. Kettering

need not be confined to the automotive and airplane industries in the opinion of Mr. Kettering who saw no reason why it could not be applied economically in several fields where its use at this time is unknown. He declared that as soon as the proper fuels were available gasoline engines up to 7,590 horsepower could be built suitable for power in railway transportation. He said it was possible that this type power would come into general use in railroad operation.

Lubricants

Mr. Kettering touched briefly on the subject of lubricants for motor vehicles. In regard to engines, he said, the problem is considered from the standpoint of starting properties, feeding qualities into pump, and circulation and general lubricating performance when used under high speed and high temperature conditions. He commended the oil industry for its adoption of the numbers approved by the Society of Automotive Engineers which, he said, had enabled the manufacturer and consumer to determine more definitely the properties of motor oils.

Whether an oil is a paraffin base or an asphalt base is not so important from the viewpoint of the car manufacturer, Mr. Kettering continued in discussing motor oils in relations to performance. "You are makers of functions to serve a certain purpose," he declared in stressing the importance of manufacturing lubricants and greases which would satisfy the requirements of the modern motor vehicle and airplane.

Mr. Kettering in his address digressed from time to time to discuss other matters of more or less direct concern to the oil and automotive industries. He predicted the early arrival of express highways to take the place of the present highway systems which he characterized as "improved wagon roads." When these express highways and the improved engines and fuels that are to come are available he expressed the belief that for 365 days out of the year they would afford faster transportation than any other method.

Advertising

"The public still thinks the oil industry is just a little off color," and this can be remedied by better advertising and contact methods, in the opinion of Mr. Kettering.

He compared the relative amounts of free publicity received by the oil and automobile industries in newspapers and other publicity mediums and indicated that the former industry had failed to take advantage of the opportunity to place its operations in the proper light with the public.

Consumption Minded

Finally Mr. Kettering offered his remedy for the overproduction evil constantly facing practically all industries. "The country has become too much production minded over the past 10 years," he declared, and more attention should be paid to the consuming end. He explained how the automobile had been brought to the farmer and other constant users through well-directed sales effort creating a demand which now absorbs the bulk of the output.

More imagination in advertising and sales, he concluded, will make the "excellent desires of today the necessities of tomorrow."

Co-operation in Industry

The address of Alfred Reeves, general manager of the National Automobile Chamber of Commerce, was also well received by those in attendance at the convention. Speaking on the subject, "Advantages That Come From Co-operation in the Motor Industry," Mr. Reeves explained the co-operative activities of the automobile manufacturers, which, he said, were largely responsible for the rapid growth of that industry which absorbs the bulk of the refined products of the oil industry.

He referred to the agreements in which patented developments of one company had been made available to all other manufacturers, as an outstanding example of co-operation. He said these agreements which were recently renewed for another five years had had an important part in bringing about a situation in which all cars gave satisfactory service, thus contributing to a rapidly increasing consumer demand.

The more than 100 major automobile shows that are held yearly and the research work along sales lines carried on under the sponsorship of the national organizations were also pointed to as practical demonstrations of the benefits that accrue to all through co-operative work. In connection with sales, investigations are constantly under way covering both domestic and export markets. The national association also sponsors co-operative advertising programs such as motion pictures showing the varied activities of the motor car industry.

President's Address

E. M. Lyons, president of the association, in opening the two-day meeting, summarized the statistical situation as it applies to the production and consumption of crude oil and refined products. These data were made the basis for his contention that each company should attempt to maintain an equilibrium between supply and demand.

"The oil industry cannot expect a few far-sighted companies to do all that is necessary to bring about a balance between supply and demand," Mr. Lyons said. "It is clearly the duty of each individual company, no matter how small, and no matter how large, to assume its share of the responsibility, and in so doing to secure its share of the prosperity. This is a matter which cannot be made the subject of agreement, but it is within the province of individual intelligence.

"Every association has the legal right to assemble and make public the statistical facts, but the intelligent action which those facts require is the responsibility of each individual company. The oil industry's path to progress is not necessarily confined to expansion of output. To continue to be the world's largest producer and refiner of oil at any cost is not our aim. That our country has been blessed by Providence with an abundance of mineral wealth does not justify our overproducing and wasting any of it."

Association Work

The National Petroleum Association carries on a large part of its activities through departments. Several of the trustees of these departments made progress reports during the two-day meeting.

Willis Crane, traffic attorney in charge of the association's traffic work over the past five years, explained some recent cases handled for individual members in which large savings in rail transportation costs were made possible. trustee in charge of the Department of

O. P. Keeney of the Keeney Oil Co., trustee in charge of the Department of Standards and Tests, said the work was becoming more and more important. Over a period of several years this department, co-operating with the Bureau of Standards, has been able to secure greater uniformity in testing methods among Pennsylvania refiners. This department also represents the association in matters relating to changes in specifications.

Mr. Keeney explained that the annual visit to the Bureau of Standards at Washington would be held June 6. Plant

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FELLOWSHIP SUPPER A BIG FEATURE

CLEVELAND, Ohio, Apr. 25. The Fellowship Supper, the traditional entertainment feature at the semiannual meeting of the National Petroleum Association "went over" exceptionally big at the Hermit Club Wednesday night.

The members of the entertainment committee outdid themselves. With F. G. Clark, who is almost as traditional as the occasion, in charge, over 200 members of the association and their guests enjoyed a supper and program of unusual interest. For the latter the association for years has specialized in home talent material. This year was no exception.

Each membership group was asked to be responsible for an entertainment feature and all accepted. Before the evening was concluded New York, Oil City, Bradford, Warren, Cleveland, Pittsburgh and Chicago groups performed with skits that were well received.

Incidentally, the association did break a tradition in holding its semiannual meeting in Cleveland instead of Cambridge Springs, Pa. The innovation, coupled with the program prepared by Fayette B. Dow and committee, apparently accounted for the exceptionally large attendance and for that reason one of the traditions of the eastern refiners may continue to be broken.

Responsibility Put On Manufacturer

Declared to Be Primarily to Blame for Conditions in the Marketing Division. Three Factors in Sales

By A. M. Maxwell
Vice President of the Standard Oil Co. of Ohio*

In any discussion of the subject of marketing there are certain things on which all of those in the oil business will readily agree.

The first is that competition is intensely keen. The American business system of giving the buyer the advantage of numerous competing sellers, each striving to get him as a customer, is not only characteristic of the oil business but is being carried to an extreme rarely if ever equalled in American economic life. I do not need to describe these conditions to this group of men. Every driver of an automobile is a potential customer of many sellers, each trying his best, to use a common phrase, and often trying his worst, to use a less common one, to attract that driver to his pump.

This competition has expressed itself in every way that the ingenuity of sellers could devise: By price reductions; the building or purchase and duplication of distribution outlets which extend in range all the way from a single pump and tank to a complete hotel; by the manufacture of a progressively more volatile, anti-knock gasoline; by extensive advertising; by larger margins to distributors, and, in many cases in the past, by many kinds of concessions and free services.

The second fact on which we will readily agree is that this competition for the business of the motorist has been conducted on a basis which has not been sound either for the oil companies or the public. Under present conditions it is costing, in many instances, more to market petroleum products than to produce the crude oil and manufacture the products. The public must pay not only for the commodity it directly buys but for all the services involved in the sale. Every so-called "free service" is a contradiction in terms. Its cost must be paid by the one who renders the service and he must ultimately pass that cost on to the buyer. Competition has been called the life of trade but its expense is part of the cost of trade. Any marketing practice which is uneconomic is as uneconomic to the public as to the marketer.

If we are, then, agreed that competition in the distribution of the products of petroleum is not only intensely keen but has been carried to extremes that are neither beneficial to oil companies nor the public, it may be helpful to analyze some of the causes of this situation.

Any commodity that flows or can be pumped can be cheaply transported. No stevedores working at high wages per hour are required to load or unload a tank vessel or a tank car. There are no engineers, firemen or brakemen on duty to guide the movement of oil through a pipe line. These and other economies make it possible for oil produced almost anywhere to be marketed almost anywhere. Crude oil is produced in Ohio and each of the five states to the east, south, west and north of Ohio. But the motorist in Ohio is offered gasoline that is manufactured in California, Texas or Venezuela. There is hardly a marketing area in the United States which has not supplies available from many and often very remote sources. This makes the marketing of oil in large measure a national and not a regional or a local problem. In this aspect of the matter the question involves the quantity manufactured in the country as a whole in relation to the quantity necessary to supply the public demand and it also involves the manufacture of quantities for which there are no current orders or for which the ultimate markets are unknown.

I shall discuss each of these aspects later but the point now to be emphasized is the intimate relation between supply in its relation to demand and marketing practices. Many oil companies have no doubt studied their gasoline manufacturing programs in the light of the quantities which they have been able to market profitably in the past, only to find that a large supply of gasoline had come into the marketing area from unexpected and often very remote sources. The resulting loss of expected customers has meant that these companies have had large stocks on hand which they have had to force upon an already over supplied market. The pressure to sell has resulted in the making of concessions in price, in margin, in irregular contractual arrange-

(Continued on Page 103)

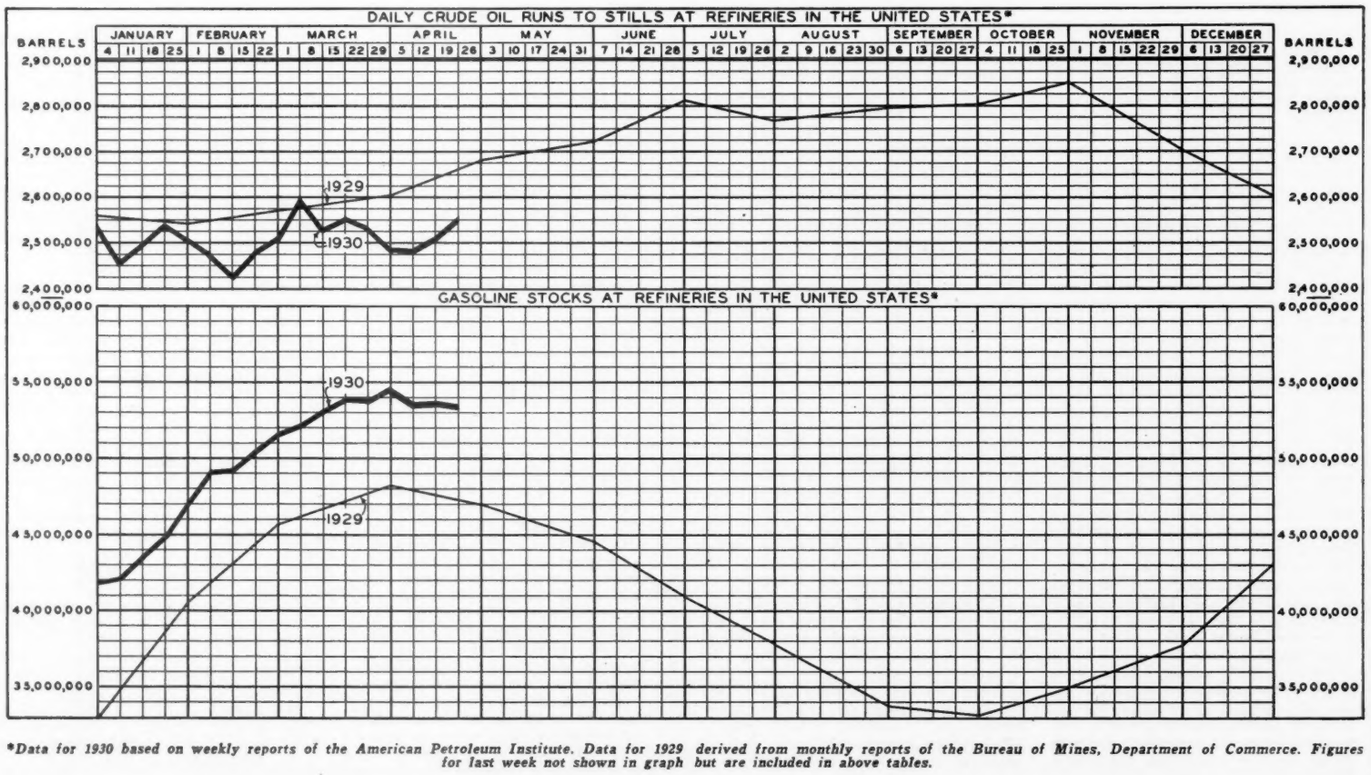
*Before semiannual meeting of the National Petroleum Association, Cleveland, Ohio.

AMERICAN PETROLEUM INSTITUTE WEEKLY REFINERY STATISTICS

The weekly report made to the American Petroleum Institute on refinery statistics—crude runs to stills, gasoline stocks and gas and fuel oil stocks in barrels—for the week ending April 26:

	Week ending April 26				Week ending April 19				Week ending January 4			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
East Coast	100.0	517,542	9,243,000	6,466,000	100.0	452,871	9,284,000	6,632,000	100.0	454,857	5,998,000	7,431,000
Appalachian	91.0	91,714	1,893,000	773,000	91.0	87,814	1,885,000	775,000	91.6	75,571	1,282,000	805,000
Indiana, Illinois, Kentucky	99.5	332,985	8,719,000	3,492,000	99.5	329,985	8,769,000	3,338,000	98.6	289,800	5,483,000	3,505,000
Oklahoma, Kansas, Missouri	89.1	319,857	4,366,000	4,123,000	89.1	327,786	4,401,000	3,731,000	87.7	263,428	3,604,000	3,277,000
Texas	90.8	604,243	7,694,000	10,010,000	90.4	564,143	7,819,000	10,279,000	90.7	539,857	6,590,000	13,757,000
Louisiana and Arkansas	96.8	176,059	2,620,000	2,120,000	96.8	168,187	2,726,000	2,052,000	96.8	160,000	2,161,000	4,499,000
Rocky Mountain	92.6	60,729	2,814,000	1,077,000	93.6	59,300	2,863,000	1,051,000	93.3	41,614	2,273,000	973,000
California	99.3	596,485	15,863,000	108,624,000	99.3	562,171	15,730,000	108,179,000	99.3	642,857	14,826,000	109,770,000
Total United States	95.6	2,699,614	53,212,000	136,685,000	95.6	2,552,257	53,477,000	136,037,000	95.4	2,468,285	42,217,000	144,017,000
Texas Gulf Coast	100.0	456,600	6,640,000	7,282,000	99.4	422,514	6,792,000	7,675,000	100.0	429,585	5,579,000	10,792,000
Louisiana Gulf Coast	100.0	108,571	2,253,000	1,220,000	100.0	104,414	2,361,000	1,184,000	100.0	108,514	1,877,000	3,818,000

(1) Per cent refinery capacity represented. (2) Daily crude runs to stills. (3) Gasoline stocks. (4) Gas and fuel oil stocks.



*Data for 1930 based on weekly reports of the American Petroleum Institute. Data for 1929 derived from monthly reports of the Bureau of Mines, Department of Commerce. Figures for last week not shown in graph but are included in above tables.

Development of Adhesives for Foiling

Large Amount of Research Work on Types Never Before Produced. Characteristics and Method of Application

By Harry F. Perkins*

For years numerous forms of coatings have been in use for the protection of steel against corrosion. There have been a great many methods devised for protection which have never come into general use.

Much effort is continually being exerted to make steel better and cheaper and because of this as well as the wide gap between the price of steel and that of the next structural substitute of a more corrosion resisting nature, steel is due to remain the principal material for building.

It has paid well in many instances to protect the steel surface with paints, platings, metal coatings and chemical formations. This happens when the cost per square foot is equal to or less than would be the cost of the steel lost over the period representing the life of artificial coating.

Coatings must be selected wisely as any or all of them are quite critical, and decision must be made with full

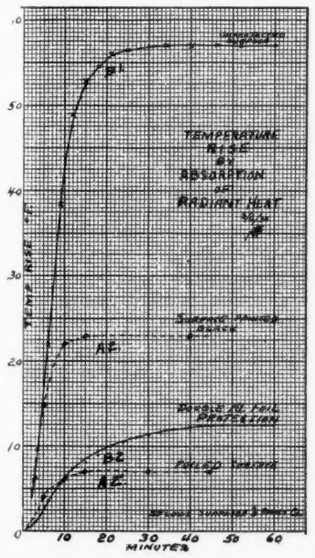


Figure 1.

The data in Figure 1, were obtained by subjecting a closed can simulating an oil tank to rays from an electric radiant heater.

Curve B 1 is the temperature rise of interior of unprotected can above the room temperature plotted against time.

Curve B 2 is the temperature rise when a specially constructed shield consisting of two layers of foil is interposed between the can and the radiator.

The data for A curves were obtained by the same method but with much lower heat intensity and serve to emphasize the advantage of Aluminum Foil.

Curve A 2 is for a dull black surface on can.

Curve A 2' is for the can completely foiled.

knowledge of service. It must not be expected that any of the applied coatings will be very effective under water or other liquids. All applied coatings are porous and the capillarity of the very fine porosity seems to act specifically to increase the rate of corrosion relatively. And, the deterioration of the coating is not here considered. In the atmosphere or where moisture is not in a position to be acted on by capillary attraction or osmosis many of these coatings have proved worth while.

The history of aluminum has shown it to be highly resistant to corrosion in general but except in a few specific applications its use as a protection against corrosion is of very recent origin. Now that practically pure aluminum is available in foil of substantial thickness its application to steel structures especially of large area is rapidly gaining in interest, as it provides a means within the cost of painting for protecting structures many years—many times the life of paint—and at the same time obtaining a very striking, clean appearance. It is quite possible to wash aluminum clean with soap and water as the surface is mechanically smoother than any paint surface after a few months of weathering.

The bright, hard, smooth surface has been shown by authoritative tests to be an excellent reflector of light and heat, its reflectivity is rated from 80 to 85 while new aluminum paint is given as from 50 to 60 and it is well known how quickly this value decreases. The curves in Figure No. 1 will give some idea of this effect. A screen of foil placed directly in front of an iron plate exposed to radiant heat caused its temperature to be reduced from 164° F. to 78° F.

Two Years of Tests

During the past two years tests have been carried on which covered the use of all metals and alloys commercially available, under corrosive conditions including various classes of bad industrial atmosphere, impure brackish water, oil refinery acids and alkalis. In general, tin

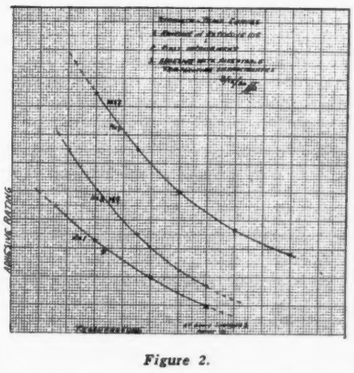


Figure 2.

showed the greatest resistance and aluminum came next being usually far better than any other metal or alloy. It was found that commercial aluminum varied greatly in corrodability, so tests were instituted, the Aluminum Co. of America supplying 10 samples, each of a standard pure metal or alloy. From this test we have a record of just how well the various aluminums resist the different types of corrosion.

A few comparisons of metals subject to practical corrosive conditions are given in Table No. 1.

Aluminum is not the only metal now available for foiling as lead, zinc, tin and magnesium may be used where more desirable while copper, brass, nickel and Allegheny metal may be had in foil thickness of narrow widths. Thus we now have at hand a practical means whereby steel may be used with the worries of corrosion set aside.

Application of Foil

With the advent of foiling there arose the question of how to apply foil to a structural surface in a practical manner insuring its lasting advantages and this

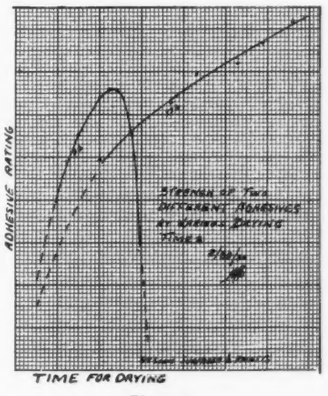


Figure 3.

has brought about a large amount of research work on adhesives of a type never before produced which has resulted in making available an accepted means for cementing metal foil to metal and wood surfaces permanently. The technique or mode of procedure to get economical and satisfactory results under all conditions has also been developed, so that we are now on the threshold of a new era of extending the life of many of our great and costly structures now built of steel and exposed to corrosive influences.

When we speak of an adhesive we have the conception of something sticky, so sticky that bodies will be held together against great force. Adhesion, technically, is only a surface effect and in fact any fluid that will wet a surface may be said to adhere to that surface. There must not only be adhesion but there must be cohesion and this is possibly the reason why sticky substances have been called adhesives because adhesion and cohesion do not usually go well together. We have plenty of cohesion in woods and metals but adhesion in these cases is nil. On the other hand, sugars, starches and tars are sticky but in this state have little rigid cohesion.

Much study has been given to the structure of atoms and molecules, their forms, movements and attractions but though theories have been advanced the picture of cohesion and adhesion remains obscure, so we must revert to empirical procedure which means much experimenting in the dark. It does seem quite certain that cohesion is due to chemical affinity and is related to such properties as latent heat and evaporation, density and coefficient of expansion. We must also deal with plastic flow and viscosity in considering adhesives for foiling.

Development of Adhesives

In the development of adhesives for foiling we are favored in one way—a very important consideration too—the adhesive will be completely protected from all external deteriorating influences, and in the case of aluminum foil even the temperature range will be much less than normally experienced.

Some have thought that adhesives for foiling should produce a rigid bond similar to that obtained by a hardening cement but we must consider means for harmonizing two materials having different characteristics and at the same time subjected to somewhat different forces so we do this by retaining elasticity while at the same time maintaining a high degree of strength. To do this, and at the same time supply the adhesive in a form for application by brush or spray at a reasonable cost, has now been made possible through the intensive work and study that has been given to this subject over the past few months.

Much grief has been experienced in the past by trying to stick metals to materials with a different coefficient of expansion by means of hot tars and asphalts and the failures after exposure to temperature changes have proved costly. Likewise some adhesives of an asphalt type put in commercial use for

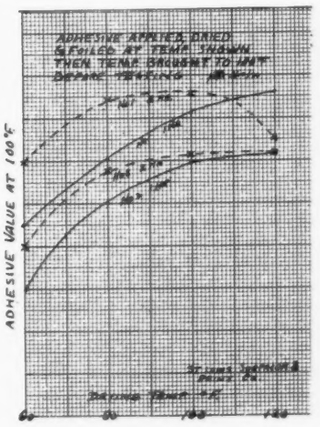


Figure 4.

The performance of an adhesive at high temperature depends on the base ingredient very largely. All material enters into plastic flow at some temperature but adhesives for foiling are necessarily of a plastic nature at all working temperatures. The curves shown indicate then the base used in making the adhesive. The difficulty arises in obtaining high temperature strength without brittleness at low temperatures.

foiling are inadequate showing lack of strength although quite sticky. This will result in blisters forming where even there is a slight strain in the foil. In fact the foil is liable to be blown off by the wind when such types of adhesives are used.

No Simple Problem

In discussing the work done during the development of acceptable adhesives it is pointed out that this has been no simple problem. Many have made attempts at this with the thought of its simplicity only to be quickly disillusioned.

Starting with simple solution of asphalts, tars and resins 35 complete products of a bituminous nature have been made up each one representing an im-

(Continued on Page 103)

TABLE NO. 1—PENETRATION—INCHES PER YEAR

	Atmosphere in vicinity of sulphuric acid plant	Atmosphere in vicinity of chlorine plant	Industrial atmosphere	Oil vapors from cracked distillate
Tin	.000354	.0454	.000204	.0001235
Lead	.000267	.001206	.000213	.000402
Zinc	.000963	.0306	.000187	.00096
Aluminum	.0001078	.0267	.0001	.000374
Steel	.01537	.0115	.00309	.012
	Oil vapors from Crane-Upton crude		Oil vapors containing HCl.	Oil vapors from Crane-Upton treated naphtha
Tin	.0000604		.0000854	.000709
Lead	.000259		.000302	.00049
Zinc	.....		.....	.0074
Aluminum	.000129		.000568	.0033
Steel	.0193		.0158	.033

*Technical director, St. Louis Surfacer & Paint Co.

Importance of Dixie Pool, Louisiana

Shows Depositional and Structural Conditions and Possibilities of Production on Flanks of Major Structures

By H. K. Shearer and E. B. Hutson
Standard Oil Co. of Louisiana, Shreveport*

The Dixie extension of the Caddo oil field is located in the northwestern part of Township 19n, Range 14w, Caddo Parish, Louisiana, which is about 10 miles north-northwest of Shreveport, 3 miles south of Dixie, and 3½ miles southeast of the nearest production in the old Caddo Field. (See index map, Figure 1.)

Although the field is small, both in area and production, it is of importance in showing depositional and structural conditions and possibilities of oil production on the flanks of major structures in North Louisiana. The productive area is in the Red River bottom and there is no surface evidence as to the structure of the underlying Eocene and Cretaceous beds.

Drilling was started as early as 1914 and was stimulated by the discovery of the Homer and Bull Bayou Fields in 1919 and 1920, at which time several wells were completed near Dixie which could have been made into small pumpers.

The discovery well was completed May 10, 1929, as a 125-bbl. producer; and on January 1, 1930, there were 37 producers, 32 dry holes and 5 wells drilling.

The stratigraphic section as shown in Table 2, includes about 100 feet of Pleistocene and Recent clay, sand and gravel; 200-300 feet of Wilcox, sand, shale and lignite; 400 feet of Midway shale and boulders; 150 feet of shale and marl of the Arkadelphia; 150 feet of sand, shale and limestone belonging to the Nacatoch; 240 feet of clay, shale, marl and white chalk considered Saratoga and Marlbrook; 400 feet of shale, marl and chalky limestone of the Annona; 340 feet of shale, sandy shale, sand and marl of the Ozan. The basal sand of the Ozan is commonly known as the Blossom sand member. It is believed to correspond to the Buckrange sand of the Arkansas outcrop section; 435 feet of the section, from the base of the Ozan to the top of the lower Cretaceous is considered Brownstown and Tokio. This section consists of shale, sand and marl.

The oil-producing horizon is the sand found at the base of the Tokio. The lower 20 or 30 feet of this formation is thin alternating beds of hard shale and fine-grained sand which is more or less porous, depending upon the amount of cementing material present. The sand lenses range from a fraction of an inch to several feet in thickness.

Woodbine Zone

This producing zone was called Woodbine in earlier reports and the term is still in rather common use. The Woodbine sand of the drillers includes not only the basal Tokio but also some sands near the top of the lower Cretaceous which have been very productive in parts of the old Caddo Field. However, there is no evidence of the presence of the true Woodbine formation, which is found between the Tokio and the Trinity in the Arkansas outcrop section and consists chiefly of gravel and reworked volcanic material. It is probable that the Woodbine was never deposited over the higher part of the Sabine uplift, which must have been an island during that time interval.

The lower Cretaceous formation encountered in wells drilled in the Dixie Field, consists of hard shale, sand and limestone. Showings of oil have been found but the sands are too tightly cemented and only one well has produced a small amount of oil from the Trinity. These beds belong to the upper red beds division of the Trinity.

Trinity Beds

The beds known as Trinity on and around the northern part of the Sabine uplift are so thick and varied in character that they must be considered a group rather than a single formation. The so-called upper red beds consist largely of marine beds of shale and limestone and some beds of red or brown shale, and their thickness ranges from 830-1,300 feet near Dixie.

Below these beds is the Glenrose formation proper consisting of 1,600-1,800 feet of limestone, anhydrite, shale and sand without any red beds. The beds below the anhydrite produce oil and gas at Pine Island and Cotton Valley.

The lower red beds consist of about 2,000 feet of nonmarine sand and shale, most of which is colored red. Only two wells in Louisiana have drilled through this formation: Humble Oil & Refining Co.'s No. 30 Bliss and Wetherbee on the Bellevue structure, and Dixie Oil Co.'s No. 92 Dillon on the Pine Island Dome.

The lower marine beds consist of limestone and shale, the thickness of which is unknown. The total known thickness of the Trinity is something over 1 mile.

The Fredericksburg and Washita formations of the lower Cretaceous, which overlie the Trinity, have not been found and were probably never deposited on the top of the Sabine uplift. These formations come in between the Tokio and the upper red beds of the Trinity along the west flank of the uplift and thicken westward into Texas.

Structure—Regional

The Dixie area is located on the east slope and near the top of the major structural high known as the Sabine uplift. The Sabine uplift is one of the large folds on the great North Louisiana and South Arkansas structural high, which extends far enough east to include Smackover and other oil fields in Arkansas and the Monroe and Richland gas fields in Louisiana. The total area to be included in the Sabine uplift is a matter of definition, but the principal axis extends southeast from northern Caddo to DeSoto and Red River Parishes.

The highest points on the top of the Nacatoch sand on the Sabine uplift proper are in the Mooringsport district of the Caddo Field and in the Naborton district of the DeSoto-Red River Field.

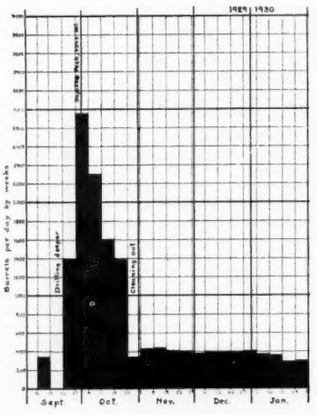


Figure 3—Standard Oil Co. of Louisiana, Caddo Parish School Board No. 1 well. Graph shows daily average production by weeks.

At both of these points the Nacatoch is found less than 550 feet below sea level. The Bellevue dome-like structure, which is about 20 miles east of the principal axis is even higher.

The structure of the other upper Cretaceous formations is approximately the same as the Nacatoch structure; but the lower Cretaceous structure is entirely different, because of the folding affecting the upper Cretaceous is superposed on more intense folding already present in the lower Cretaceous.

Structure—Local

In the limited area around the Dixie Field, contouring on the Nacatoch sand does not show the true structure on account of irregular deposition or unconformity. The Annona and Ozan are also unsatisfactory as horizon markers due to the lack of care in drilling and keeping measurements, therefore the subsurface map is contoured on top of the lower Cretaceous which may be taken as the base of the producing sand. (Figure 2.)

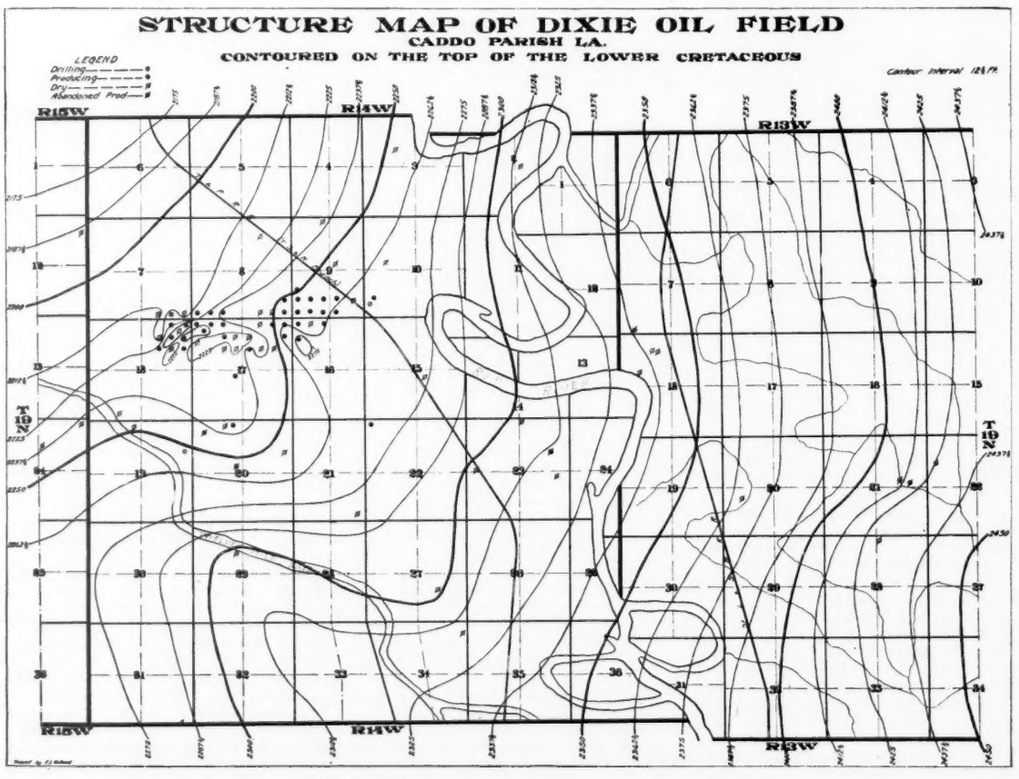
The dip is about 25 feet per mile east-southeast across the area mapped. The structure in the producing area may be described as a terrace on a slight anticlinal nose. The oil comes from lenses of basal Tokio sand, which were deposited only in hollows or erosion channels in the surface of unconformity at the top of the lower Cretaceous. Wells which happened to strike hills or ridges on the lower Cretaceous were dry because of lack of sand, although they might offset good producers. The relief in detail is only about 30 feet but the depth of the unconformity below sea level in producing wells varies from 2,213 feet to 2,279 feet because of the tilt to the southeast.

The best group of wells in the field are the four around the common corner of Sections 8, 9, 16 and 17, Township 19n, Range 14w, each of which had above 3,000 bbls. per day initial production.

On account of erratic sand conditions, no location can be considered proven in advance of drilling and no new location has much more than an even chance of finding production.

Geologic History

The known geologic history of the Caddo area begins in the early Cretace-



*Before American Association of Petroleum Geologists, New Orleans meeting.

ous. It is inferred that this was a land area during much of the Paleozoic, because there is evidence that the material of the early Pennsylvanian deposits of southwestern Arkansas came from a southern source. At that time a southeastern extension of the Arbuckle Mountains may have continued into Louisiana.

Recent evidence presented by Melton indicates that the Ouachita Mountain folding occurred at a later period than that of the Arbuckles. His evidence shows that most, if not all of the Ouachita disturbance occurred in post-early Permian, which means that it may have continued into the early Cretaceous.

In the North Louisiana area, there was a rather rapid downwarping during the early Cretaceous, which probably accompanied the latter phase of uplift in the Ouachita Mountains to the north, and permitted the deposition of the great thickness of Trinity beds known to exist. Possibly the older Permian red beds extended much farther east than the present distribution and the rapid erosion and redeposition of this material in shallow water was the principal source of the 2,000 feet of lower red beds in the Trinity. Later the area sank below sea level and depression continued while the Glen Rose was deposited. During part of the Glen Rose time the synclinal basin was cut off from the open sea and thick beds of gypsum or anhydrite were deposited. After this, communication with the sea was re-established, while the rate of subsidence decreased and the water became very shallow so that the alternating sands, limestones and red shales of the Trinity upper red beds were laid down.

About the end of the Trinity a tilting movement toward the west occurred. The East Texas syncline remained below sea level while the Fredericksburg and Washita were deposited, but the Sabine uplift and the area to the east became land and erosion became active.

Toward the end of the lower Cretaceous and probably continuing into the early upper Cretaceous was a period of igneous activity which seems to have been the final result of the Ouachita mountain-building movement. Plugs of basic igneous rocks of this age are found in several localities in Arkansas.

It is probable that the large dome-like structures of North Louisiana such as Pine Island, Bellevue, Homer and Cotton Valley, were thrust up by deep-seated igneous intrusives during this period, because they are larger than any known salt dome structures, and obviously could not have been formed by ordinary compressional folding. Whatever the cause, the lower Cretaceous beds at Pine

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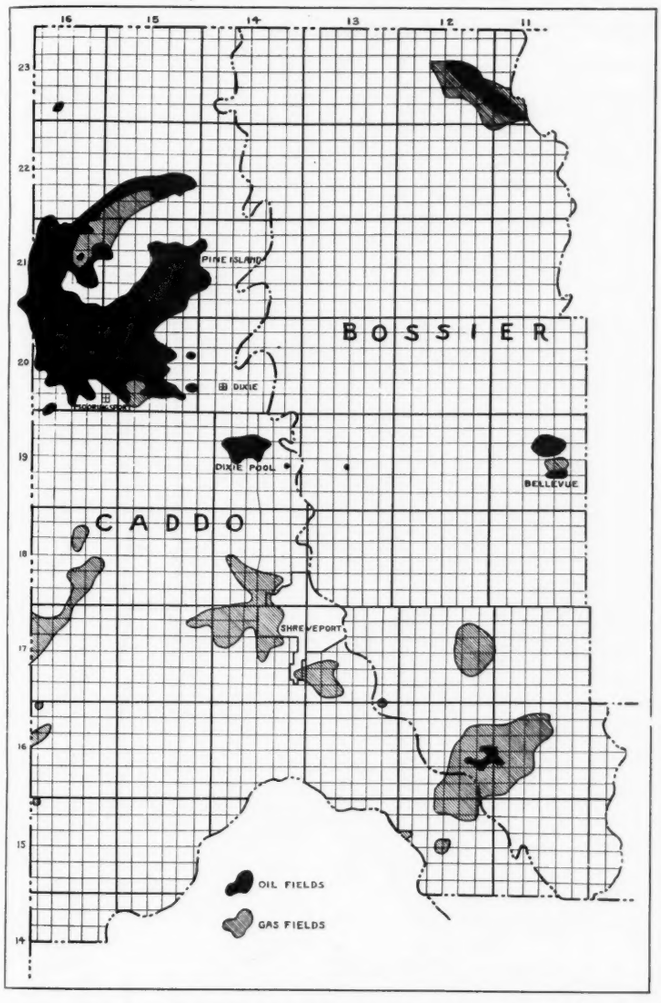


Figure 1—Map of Caddo and Bossier Parishes, Louisiana, showing the locations of the Dixie oil pool in relation to other oil and gas fields. The width of the area mapped is approximately 38 miles.

	FORMATION	SECTION	FEET	CHARACTER OF ROCKS
	PLEISTOCENE AND RECENT		100	Sand, gravel and red clay.
EOCENE	WILCOX FORMATION		200-300	Gray or brown sand and shale with some lignite and hard boulders.
EOCENE	MIDWAY FORMATION		300-400	Dark gray shale with siderite boulders, some limestone and marl near base.
	UNCONFORMITY			
UPPER CRETACEOUS	ARKADELPHIA FORMATION		150	Gray shale and marl, thin beds of sand and limestone.
UPPER CRETACEOUS	UNCONFORMITY			
UPPER CRETACEOUS	NACATOCH FORMATION		150	Hard and soft sand at top, sandy limestone, sandstone and shale at base.
UPPER CRETACEOUS	SARATOGA CHALK AND MARLBROOK FORMATION		240	White chalk. Gray clay, shale and marl.
UPPER CRETACEOUS	ANNONA CHALK		400	White chalky limestone with some gray shale and marl.
UPPER CRETACEOUS	OZAN FORMATION		340	Gray shale, sandy shale, sand and marl. Sand member at base, "Buckrange" or "Blossom"
UPPER CRETACEOUS	UNCONFORMITY			
UPPER CRETACEOUS	BROWNSTOWN FORMATION AND TOKIO FORMATION		435	Dark gray shale, sandy shale, marl and sand near top. Dark greenish gray shale. Lenticular sand at base.
UPPER CRETACEOUS	UNCONFORMITY			
LOWER CRETACEOUS	TRINITY GROUP		5000 plus	"Upper red beds" consisting of alternating red, brown and greenish gray shale, sandy limestone and calcareous sandstone, 1,300 feet plus; with Glen Rose formation, etc. below.

Table 2—Generalized stratigraphic column in the Dixie area, Caddo Parish, Louisiana.

TABLE 1—LIST OF WELLS DRILLED AROUND DIXIE AREA BEFORE DISCOVERY OF COMMERCIAL PRODUCTION

	Company drilling—	Name of farm	No.	Location	Total depth	Date comp.	Remarks:
1.	Busch-Everett	Glassell	1	30-20n-14w	2,353	1909	4,000,000 ft. gas in Nacatoch; 5,000,000 ft. gas and salt water at 1,886 ft.; oil show 2,150-2,350 ft.
2.	Standard Oil Co. of La.	Cole	1	25-19n-15w	2,794	1914	Good oil show 2,455 ft.
3.	Parker & Edwards	Caldwell	1	29-19n-14w	2,485	1914	Tested salt water 2,478 ft.
4.	Sodo Lake Oil Co.	Slattery	1	15-19n-15w	2,435	1914	Oil sand in "Woodbine."
5.	Sodo Lake Oil Co.	Slattery	2	15-19n-15w	2,412	1914	
6.	Arkansas Fuel Co.	Dillon	1	18-19n-14w	2,451	1914	Salt water flow from sand 2,424-26 ft.
7.	Hunter, Norris et al	Hunter		9-19n-14w	2,530	1915	Tested salt water 2,477-2,530 ft.
8.	A. W. Baird, trustee	Dickson	1	31-20n-14w	2,384	1916	Oil shows at 2,174 and 2,311 ft.; salt water at 2,384 ft.
9.	Baird et al	Van Cleve	1	24-19n-15w	2,760	1916	Salt water and a little gas at 2,436 ft.
10.	R. L. Layne	Levee Board	1	10-19n-15w	2,361	1918	Oil show at 2,270 ft.; tested salt water.
11.	Arkansas Nat. Gas Co.	Levee Board	32	24-19n-15w	2,840	1918	Oil show at 2,275-2,337 ft.; dry at 2,840 ft.
12.	Caddo La. O. & G. Co.	Dillon	1	20-19n-14w	2,394	1919	Pumped 10 to 25 bbls. of 45° oil from "Woodbine" sand at 2,386-94 ft.
13.	Caddo La. O. & G. Co.	Dillon	2	20-19n-14w	2,545	1919	Swabbed for three days, showed 5-8 bbls. of oil and 60-70 bbls. salt water.
14.	Boisseau et al	Fullilove	1	21-19n-13w	2,613	1920	Oil and gas show in "Blossom" at 2,020 ft.; oil formation at 2,585-97 ft.; made 5 or 6 bbls. per day on pump.
15.	Boisseau et al	Fullilove	2	22-19n-13w	2,693	1920	Dry.
16.	Boisseau et al	Fullilove	3	21-19n-13w	2,638	1920	Tested dry at 2,616 ft.
17.	Homer-Union Oil Co.	Scott	1	35-19n-13w	2,785	1920	Gas show at 956 ft.; salt water at 2,505 ft.
18.	Bill Rowe Oil Co.	McCullough	1	26-19n-13w	2,750	1920	No shows reported.
19.	Invaders O. & R. Co.	Ellerbee	1	34-19n-14w	2,830	1920	Tested salt water at 2,774 ft.
20.	Wasson O. & G. Co.	Wasson	1	23-19n-15w	2,444	1920	Tested 1,729,000 ft. gas at 2,434-44 ft.
21.	Wasson O. & G. Co.	Wasson	2	26-19n-15w	3,030	1920	Tested salt water in Nacatoch and below 2,460 ft.
22.	Oregon Oil Co.	Oden	1	27-19n-14w	3,514	1922	Oil and gas show at 2,459 ft.
23.	Collins et al	Gray	1	28-19n-13w	3,318	1923	Tested salt water at 2,601 ft.
24.	Perkins et al	McFarland	A-1	18-19n-13w	2,626	1923	Oil shows at 988 and 2,557 ft.; tested salt water.
25.	Collins et al	Levy Realty Co.	1	23-19n-14w	2,609	1924	Swabbed 5 bbls. oil per day with considerable salt water at 2,549 ft.
26.	Woodley & Collins	McVea	1	23-19n-14w	2,675	1925	Oil shows at 956 and 2,554 ft.; tested dry.
27.	Woodley & Collins	Kilburn	1	18-19n-13w	2,655	1926	Oil shows at 966 and 2,521 ft.; tested dry.
28.	Gulf Refining Co.	Byrd	1	2-19n-14w	3,903	1926	Oil shows at 966 and 2,850 ft.; tested salt water at 2,854 ft.
29.	Woodley & Collins	McVea	A-1	23-19n-14w	2,610	1928	Tested small show of oil and gas at 2,570 ft.
30.	Gulf Refining Co.	Attaway	1	1-18n-15w	4,568	1928	No shows reported.
31.	D. C. Richardson	Hunter est.	1	17-19n-14w	2,422	1929	Discovery well, 125 bbls. of oil first day.

Progress Made in Straight Hole Drilling

With Drilling of More Vertical Wells Have Come Very Noticeable Improvement in Quality of Hole. Few Sudden Bends Now

By Alexander Anderson*

Surveying of rotary drilled oil wells in California, begun in 1924, showed that many wells drifted hundreds of feet and occasionally considerably more than 1,000 feet from the vertical.

Operators did not immediately realize the losses resulting from the underground drift of wells, but, by the year 1928 the entire industry awakened to the importance of drilling straighter holes.

Table 3 (Figure 1) presents data of drift and inclination of 255 rotary holes, or say, 1,158,542 feet of hole surveyed during the years 1924-1928. Of this footage, 96.5 per cent was surveyed in California and, since the balance of 3.5 per cent, surveyed in other states does not differ greatly in drift and inclination from the California footage, the whole table will be considered as California footage for the purpose of this paper.

The majority of the surveys of Table 3 were made before the commencement of any general effort to drill straighter holes.

If the maximum drifts and inclinations, and consequently the average figures, of this table are somewhat exaggerated because of the surveying of an undue proportion of exceptionally bad wells, it may be remarked that still greater amounts would have been registered if the capacity of the survey apparatus had permitted the measurements of inclinations larger than 65°.

The latter part of 1928 saw the commencement of widespread effort to drill straighter holes.

Table 4 (Figure 2) includes 183 wells comprising a footage of 1,010,908 feet of rotary hole, all in California and all surveyed during the latter part of 1929.

Most of these wells were drilled after it had become the custom to survey wells, to use acid bottles and to limit the weight placed on the bit.

The writer thinks that Table 4 very nearly represents the average condition of rotary holes drilled in California during the latter part of 1929.

By comparing the figures of Table 3 and Table 4, a fair idea of the improvement that has resulted from recent efforts to drill straighter holes may be obtained.

The average drift at 6,000 feet is 793 feet in Table 3 and 422 feet in Table 4, indicating an improvement of 47 per cent.

The average horizontal distance from derrick floor to bottom at 6,000 feet is 589 feet in Table 3 and 291 feet in Table 4, an improvement of 51 per cent over the former figure.

The figures for average drift maximum drift and average horizontal distance from derrick floor to bottom in Tables 3 and 4 are shown in graphic form in Figure 3.

Old and New Inclinations From Vertical

The average inclination from the vertical at 6,000 feet is 22° 25' in Table 3 and 8° 50' in Table 4.

Figures 4 and 5 exhibit in graphic form the minimum, average and maximum inclinations of the two tables.

Loss in Vertical Depth

An inclined hole does not penetrate to the same vertical depth as a vertical hole.

(Continued on Page 140)

—DRIFT AND INCLINATION OF OIL WELLS.— TABLE 3. NOV 1928.
SOME DATA FROM UNDERGROUND SURVEYS OF 255 ROTARY DRILLED HOLES MAINLY IN CALIFORNIA - 1,158,542 FEET OF HOLE & 13,150 INDIVIDUAL SURVEY READINGS.

NO OF HOLES	A DEPTH IN FEET	B. HORIZONTAL DISTANCE FROM MOUTH TO BOTTOM OF HOLE. IN FEET.			C. INCLINATION OF HOLE FROM VERTICAL IN DEGREES & FEET PER 100 FT.			D. AMOUNT OF DRIFT. VERTICAL IN FEET.		
		MAXIMUM	MINIMUM	AVERAGE	MAXIMUM	MINIMUM	AVERAGE	MAXIMUM	MINIMUM	AVERAGE
255	300	37	0	8.7	8° 20' 14.5 FT PER 100	0° 00'	2° 09' 3.8 FT PER 100	114	0.0	10.6
255	1000	131	0	30.2	15° 30' 26.7 FT PER 100	0° 00'	5° 05' 5.4 FT PER 100	131	0.0	34.4
243	2000	455	1	89.2	34° 15' 56.3 FT PER 100	0° 10' 0.3 FT PER 100	6° 05' 7.1 FT PER 100	457	1.5	104.5
219	3000	845	9	119.5	32° 15' 55.4 FT PER 100	0° 50' 0.9 FT PER 100	6° 42' 11.7 FT PER 100	850	47.0	204.9
163	4000	1036	6	236.5	40° 15' 64.6 FT PER 100	0° 30' 0.9 FT PER 100	9° 00' 15.6 FT PER 100	1285	77.6	307.7
104	5000	1752	29	396.8	52° 00' 78.8 FT PER 100	0° 50' 0.9 FT PER 100	15° 44' 27.2 FT PER 100	1815	91.0	515.9
38	6000	2200	74	589.4	65° 15' 90.8 FT PER 100	2° 30' 4.4 FT PER 100	22° 25' 38.1 FT PER 100	2228	357.0	793.1

Figure 1—Table 3. Drift and inclination of oil wells surveyed during the years 1924-28.

Explanation of terms:
"B" is the horizontal distance between a vertical line through the mouth of the hole and a vertical line to the hole at the listed depth.
"C" is the inclination from vertical at the listed depth.
"D" is the total drift from vertical down to the listed depth. In the case of a well drifting in the same direction from mouth to bottom "B" and "D" would be equal.

DRIFT & INCLINATION OF OIL WELLS TABLE No 4 NOVEMBER 1929

SOME DATA FROM UNDERGROUND SURVEYS OF 183 ROTARY DRILLED HOLES IN CALIFORNIA 1,010,908 FEET OF HOLE & 11,358 INDIVIDUAL SURVEY READINGS

NO OF HOLES	A DEPTH IN FEET (Measured Depth)	B HORIZONTAL DISTANCE FROM MOUTH TO BOTTOM OF HOLE (In Feet)			C INCLINATION OF HOLE FROM VERTICAL (In Degrees & Feet Per 100)			D AMOUNT OF DRIFT FROM VERTICAL (In Feet)		
		MAXIMUM	MINIMUM	AVERAGE	MAXIMUM	MINIMUM	AVERAGE	MAXIMUM	MINIMUM	AVERAGE
183	500	30	0	5.8	7° 30' 13.1 ft per 100	0° 00'	1° 23' 2.4 ft per 100	31	0	6.9
183	1000	130	0	19.4	12° 45' 22.1 ft per 100	0° 10' 0.3 ft per 100	2° 14' 3.9 ft per 100	132	5	23.6
178	2000	531	3	56.2	29° 00' 48.5 ft per 100	0° 18' 0.4 ft per 100	3° 24' 5.9 ft per 100	540	15	70.2
170	3000	730	7	103.5	29° 00' 48.5 ft per 100	0° 20' 0.6 ft per 100	4° 19' 7.5 ft per 100	738	21	135.4
155	4000	717	7	141.5	22° 00' 37.5 ft per 100	0° 20' 0.6 ft per 100	5° 22' 9.4 ft per 100	798	28	203.4
124	5000	831	3	211.9	28° 00' 46.9 ft per 100	0° 30' 0.9 ft per 100	8° 05' 14.0 ft per 100	835	101	304.7
79	6000	844	33	291.2	27° 00' 45.4 ft per 100	1° 00' 1.7 ft per 100	8° 50' 15.4 ft per 100	985	129	422.3
52	6500	1033	35	324.6	27° 00' 45.4 ft per 100	0° 30' 0.9 ft per 100	8° 48' 15.3 ft per 100	1081	143	463.7
32	7000	900	80	372.8	33° 30' 55.2 ft per 100	1° 20' 2.8 ft per 100	11° 54' 20.6 ft per 100	1100	308	535.0
10	7500	789	186	474.1	32° 00' 53.0 ft per 100	6° 20' 11.0 ft per 100	16° 45' 32.2 ft per 100	1012	377	695.3
4	8000	1035	348	602.7	31° 00' 51.3 ft per 100	10° 18' 17.8 ft per 100	20° 58' 35.8 ft per 100	1130	466	730.0

EXPLANATION OF TERMS
"B" is the Horizontal Distance Between a Vertical Line Thru the Mouth of the Hole and a Vertical Line to the Hole at the Listed Depth.
"C" is the Inclination From Vertical at the Listed Depth
"D" is the Total Drift From Vertical Down to the Listed Depth
In the Case of a Well Drifting in the Same Direction From Mouth to Bottom "B" & "D" Would be Equal

Figure 2—Table 4. Drift and inclination of oil wells surveyed in the latter part of 1929.

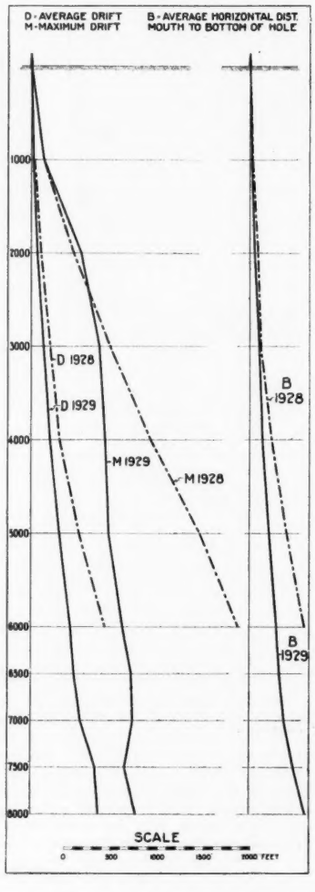


Figure 3—The left-hand chart is a graphic presentation of the average drifts and maximum drifts from Columns "D" of Tables 3 and 4. The right-hand chart shows the average horizontal distance from mouth to bottom of hole from Columns "B" of the same tables.

NO OF HOLES	MEASURED DEPTH (FEET)	MAXIMUM (FEET)	MINIMUM (FEET)	AVERAGE (FEET)
255	1000	12	0	1.0
243	2000	80	0	5.6
219	3000	253	1	15.2
163	4000	262	1	23.3
104	5000	561	1	53.9
38	6000	617	15	122.8

Figure 6—Table 3-A. Maximum, minimum and average loss in depth resulting from the drift of the wells of Table 3.

NO OF HOLES	MEASURED DEPTH (FEET)	MAXIMUM (FEET)	MINIMUM (FEET)	AVERAGE (FEET)
183	1000	12.8	.0	.6
178	2000	104.5	.1	2.8
170	3000	134.9	.1	6.9
155	4000	124.9	.1	11.9
124	5000	125.3	1.2	19.1
79	6000	126.0	1.8	30.5
52	6500	158.6	2.0	31.7
32	7000	167.9	9.1	39.3
10	7500	166.2	13.0	72.8
4	8000	210.7	21.9	89.9

Figure 7—Table 4-A. Maximum, minimum and average loss in depth resulting from the drift of the wells of Table 4.

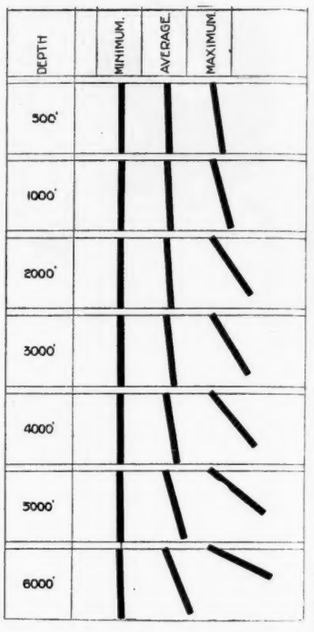


Figure 4—Inclinations of oil wells from vertical. Graphic chart of the figures of Column "C" of Table 3.

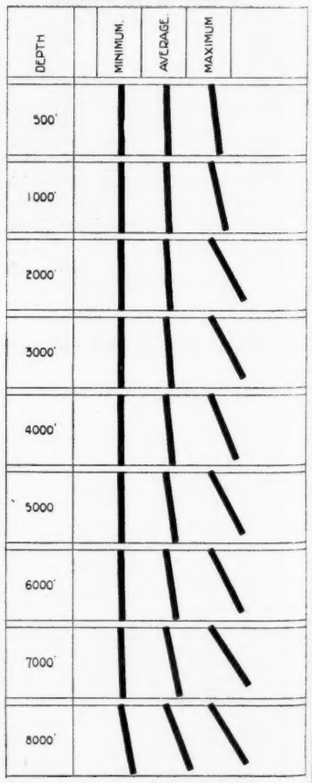
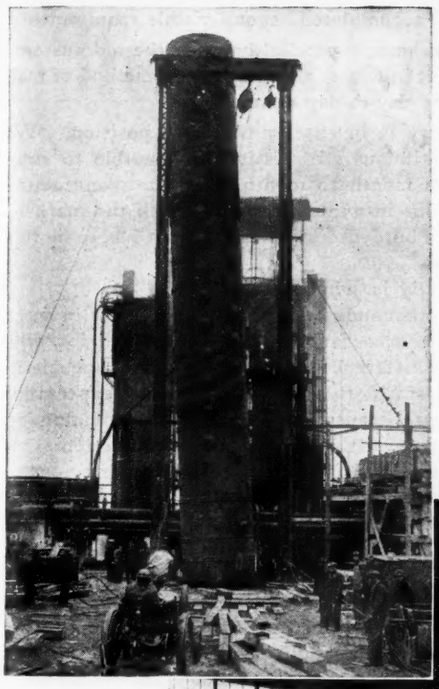


Figure 5—Inclinations of oil wells from vertical. Graphic chart of the figures of Column "C" of Table 4.

*Inventor and operator of the Anderson method of surveying oil wells. Paper read before American Petroleum Institute meeting, Los Angeles, Calif.



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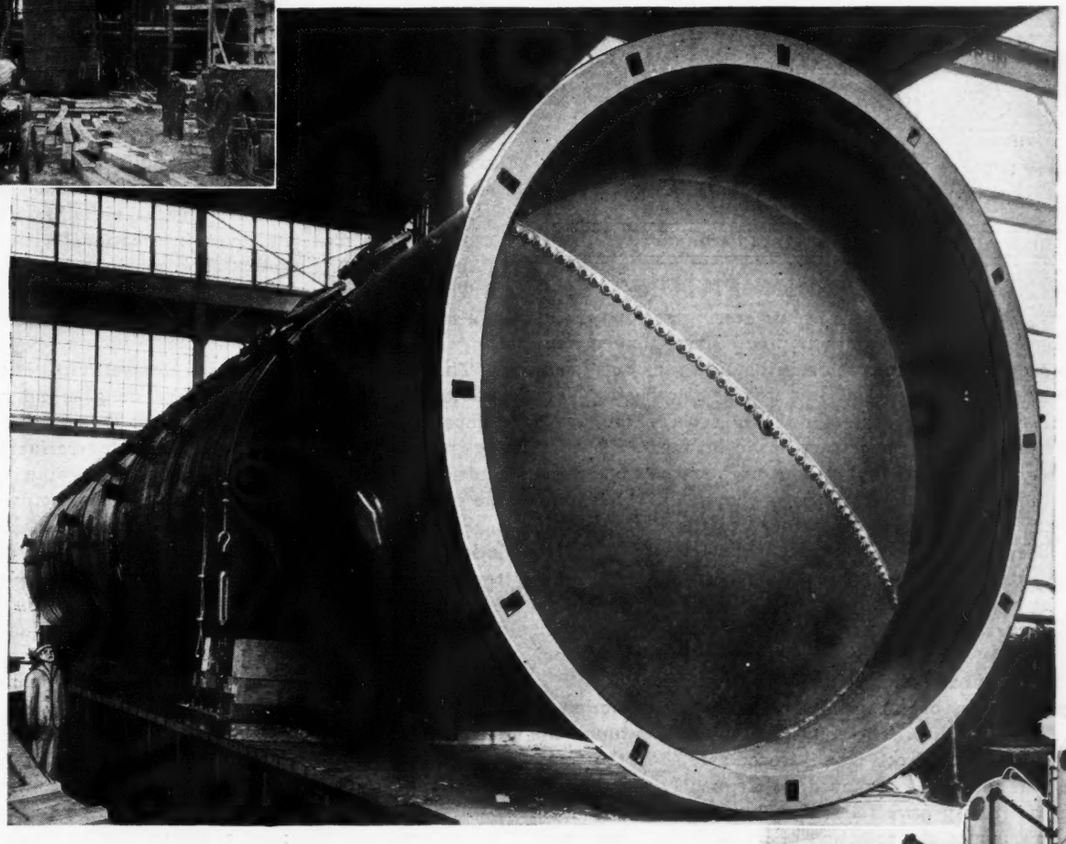

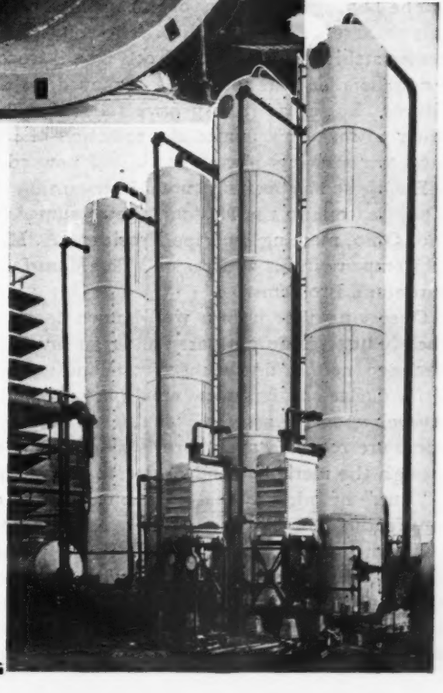

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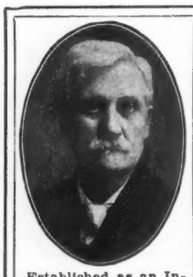

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KEEPING DOWN THE INVENTORY

The most remarkable development in business operations in the past 15 years has been hand-to-mouth buying. Every buyer must have experienced difficulty on occasion in obtaining at once some article which formerly he never had any trouble purchasing. The reason is that merchants and dealers no longer carry the heavy stocks that were once thought necessary to do business.

The oil industry, putting gasoline trucks on the streets and highways has been the primary cause for this change in commercial operations. Transportation, formerly subject to the limits of rail movement, has been so speeded up that stocks can be supplied within a few days or weeks where it used to take weeks or months.

The effect has been felt throughout the industrial and business world. Manufacturers have had to adjust their operations to it. Wholesalers have had to take it into account and its ramifications have extended into all phases of retailing and financing.

The buying public has been benefited through the reduction in costs and fresher merchandise. The country has gained through the greater stability of business freed from "frozen assets" in the shape of merchandise that could not be moved, so frequently the cause of failures. So far as it may have reduced volume and variety from which to make an immediate selection the individual buyer may find compensating advantages in the new condition.

But there has been one notable exception to this changing trend, as pointed out to the National Petroleum Association at its Cleveland, Ohio, meeting by Vice President A. M. Maxwell of the Ohio Oil Company in his address on "The Manufacturer's Relation to the Marketer's Problems."

Observing that it is a well-known fact "that manufacturers in other industries do not carry as large inventories as they did some years ago, neither do the merchants and dealers," Mr. Maxwell said: "Price deflations, large and small, have taught them that inventories may be expensive assets. Manufacturing in general is now done as orders are received and there is a steadier flow from manufacturer through the merchant and dealer to the customer."

"But," he added, "the experience of the oil business shows its manufacturing operations have not been guided by such knowledge."

It continues to pile up stocks in the winter beyond any reasonable storage necessity and then when gasoline has begun to move in the spring and summer, manufacture has speeded up again with the result that markets have been broken in midsummer in the period of greatest public demand by the rush to unload stocks that should never have been accumulated beyond visible requirements.

Mr. Maxwell drew a homely parallel between the old custom of cutting ice and storing it in winter and the modern method of manufacturing it to meet the day-to-day demand.

The gasoline industry is in exactly the same position. "With pressure stills and continuous stills it is now possible to supply customer demand from month to month," but the manufacturers keep on storing a surplus in winter that will break the market in summer, accumulating a burdensome inventory that has to be liquidated at any price later.

The question naturally is, why do they do it?

Some do not. Like other industries, they manufacture in accordance with orders, not in accordance with orders hoped for, which Mr. Maxwell says is the difference between business and speculation.

It is this gambling spirit, this manufacturing on expectations, that piles up the surplus, because it is a comparatively simple matter, with the information available, to avoid overproduction.

Of course it is not sufficient to base operations on previous volume of sales because there are so many changing factors to be taken into consideration. There is no longer any marketing area absolutely safe from invasion. A surplus anywhere may overflow into almost any territory.

Such an overflow from even "unexpected and very remote sources," as Mr. Maxwell says, leads the companies invaded to force their stocks on an already oversupplied market. The result is that the market topples like a house of cards, one against the other.

A thorough study of the statistical situation, not in a local sense, but from a national and even international viewpoint, is the only method of insuring against such contingencies.

There is just so much gasoline to be bought. It can be estimated to a safe margin, and if there is an overproduction anywhere it is a danger signal that must be heeded.

The other factor which Mr. Maxwell cites is no less important, the increasingly greater quantity of gasoline marketed through company owned or controlled outlets. This condition, steadily growing, reduces the market possibilities for refiners depending upon tank car sales but it, too, can be guarded against by knowing where the gasoline is to be sold before it is manufactured.

Such a restriction, of course, precludes manufacturing for speculation but it has been exactly that which has brought the industry to disaster so repeatedly.

What the oil industry needs is hand-to-mouth manufacturing, following the general example of practically all other industries and businesses. It has a great advantage over other businesses in the fact that its customers are known and their demand easily calculable in advance.

There has never been a slump in the gasoline business because of a falling off in demand. Every depression has been the result of overproducing gasoline beyond the known requirements.

Mr. Maxwell emphasized what has been repeatedly pointed out in these columns that most of the marketing troubles of the industry have been due to overproduction. If the manufacturers did not oversupply the market the marketing division would have no surplus to juggle with.

But when manufacturers themselves overproduce beyond what they know they can sell, when they manufacture on speculation rather than as a business they set the example and furnish the means for the manipulative evils which return to plague them in price wars and all the underhanded tricks of the trade which the Code of Marketing Ethics was expected to cope with.

Every surplus gallon manufactured weakens the Code that much.

The warning comes at a very timely period. Price improvement and increasing demand are as likely as not to carry the germs of later disaster unless precautions are taken. The temptation to increase output in the face of a rising market is always strong when, as a matter of fact, that should be the time to keep production rigidly in line with known demand lest overproduction break the promising market. In these opening days of the season it will be a safe rule to manufacture in accordance with orders, hand to mouth, month to month, as most major other industries have learned to do.

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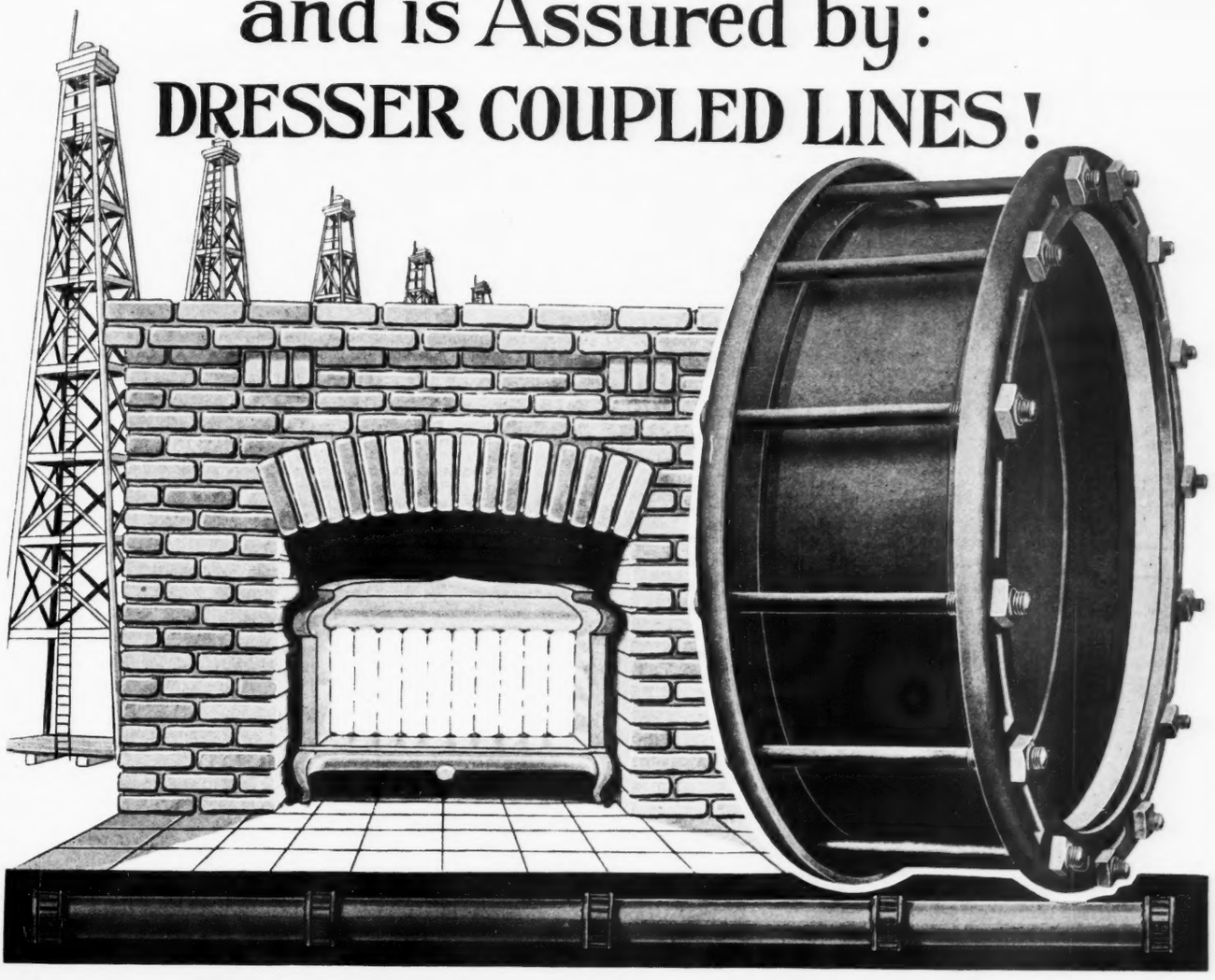

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Natural Gasoline Plant Practices

Taking Samples of Gas From a Pipe Line Under a Vacuum. Absorption Method of Manufacturing Natural Gasoline

Prepared by R. H. Pence for the Bessemer Gas Engine Co.*

To take a sample of gas proceed as follows:

Make two three-eighths-inch taps on top of the gas line the proper distance apart to fit similar connections on the sampling outfit. Screw in each tap a three-eighths-inch nipple with wheel valve and in each valve screw a short nipple with a half three-eights-inch union. The face of the union in each connection should be the same distance from the pipe line.

Before attaching portable sampling outfit to the three-eighths-inch connections on the pipe line, close valve F, invert apparatus and fill tank A with water while both valves G and J are open. After filling close valves G and J.

Fill the pipe connections on the pipe line between H and C and between E and C with water. Place the apparatus with all the valves closed and connect unions C and C. Make sure that there are no leaks in any of the connections.

After attaching apparatus fill the storage tank B to the top with water.

To obtain the sample, open valves G and H and then valves J and E. Water will flow into the pipe line and the gas will flow through pipe L into tank A. After allowing sufficient time for the water to flow out of the tank, close valves G and J and then open valve F, allowing the water to flow from the storage tank into B into A. After the water has equalized between A and B, close the valve. Repeat the operation of flowing the water from A into the pipe line by opening valves G and J. This second operation greatly assists in obtaining a true sample.

Close all valves and remove apparatus by disconnecting unions C and C. To overcome the vacuum in the sample of gas, refill B and allow water to flow into A by opening valve F.

Sample of gas can be forced out of pipe L from A into pipette by placing water in B and opening the valve F.

Connections D-H and D-E can be left in the pipe line permanently.

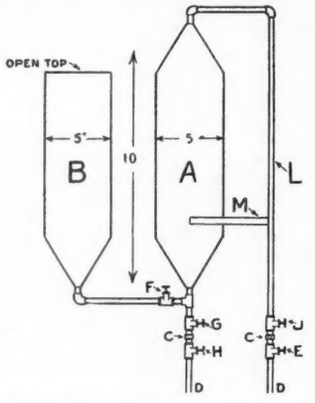
Pipe Line Drips

When handling the heavier gases, considerable condensate will accumulate in the pipe line and this together with any water must be removed. In some instances, the volume will be large enough to warrant collecting it in drums and bringing to the gasoline plant. If the product be yellow and off color, it will be necessary to distill it to remove the foreign matter; but if clean and white, the distillation will not be necessary. Water will cause considerable trouble in the cold weather and may be of sufficient volume to stop the flow of gas entirely.

For these reasons, drips should be installed at the low points on the line and the accompanying illustration shows the usual form of drip construction. The length can be varied to suit conditions and in the event of a residue gas line running parallel to the vacuum or suction line, the residue gas pressure can be used to force the condensate into the atmosphere or container. When draining a vacuum drip, the 2-inch inlet valve to the drip, as well as the equalizing one-fourth-inch pipe line, must be closed while the vent pipe of one-fourth-inch size and the blowoff pipe are open. The equalizing pipe is an advantage and helps make an efficient drip. The drip pipe is generally made of 6-inch, 8-inch, or 10-inch pipe and slopes so as to drain to the 2-inch discharge pipe placed at the lower end.

Absorption Method

The absorption method is another widely used means of manufacturing natural gasoline. "To extract or isolate the gasoline vapors, a carrying vehicle, the lean oil, is brought in contact with the wet gas from the well. Lean oil is quite similar to a very light lubricating oil. This lean oil is run to the top of a cylindrically shaped tower called an absorber, while the wet gas under pressure is run into the bottom of the absorber. The gas rises within the tower while the lean oil passes down through consecutive levels. The two



A—Sample collecting tube or tank. B—Water storage tank. C—Three-eighths-inch union. D—Three-eighths-inch tap in gas line. E, F, G, H, J—Three-eighths-inch wheel valves. L—Three-eighths-inch pipe. M—Brace to hold L and A in relative position.

elements, oil and gas, contact one another, colliding so to speak, and are agitated by a series of stationary baffles, or pan arrangement, causing the mixture to churn into a fine oil-froth that fills a large part of the entire absorber.

Now a peculiar phenomenon occurs in this oil-froth. The froth is composed of billions of bubbles, each consisting of a minute quantity of gas surrounded by a film of oil, most of which are not larger than one-sixteenth-inch in diameter. Each bubble has its individual film and this film, intimately contacting the gas, draws the gasoline vapor from the gas and absorbs it. In other words, the film of lean "hungry" oil that composes each bubble sucks the gasoline out of the gas, somewhat like a sponge acts upon water. This action, multiplied by the billions of bubbles that are constantly making, breaking and reforming, accelerated by the violent action within the absorber, thoroughly extracts the gasoline vapors. The gas, now stripped, emerges from the top of the absorber in a dry state and is carried through mains to points for consumption.

The oil, having gathered the gasoline vapors as it descended within the absorber, is run off at the bottom and is then called fat oil because its volume has been increased by a considerable amount of gasoline.

The next step is to separate the gasoline from the fat oil. This is accomplished by heating the fat oil sufficiently to vaporize the gasoline without materially affecting the oil itself. These vapors are then condensed, becoming high gravity gasoline in liquid form, ready to be mixed with gasoline of lower gravity to form a motor fuel suitable for use in automobiles, etc. The fat oil, stripped of its gasoline content, again becomes lean oil and, after being cooled, is introduced into the absorber to complete the same cycle of operation as above explained. The oil is merely used as a conveyor, or "liquid belt," to receive the gasoline vapors in the absorber and transport them to the still for release.

Equipment Necessary

In the operation of a complete absorption plant the required equipment includes inlet scrubber, absorbers, outlet scrubber, boilers for furnishing steam for heating the oil and operating the pumps and for circulating water over the cooling tower, for circulating the oil, interchanger where the hot oil from the still which we desire to cool flows countercurrent to and gives up a great deal of its heat to the cold fat oil which we desire to heat, pre-heaters where the final heating is accomplished and cooling coils in the tower where the final cooling is accomplished, dephelegmator, for controlling the quality of the product, condensers for liquefying the gasoline, tanks, water separators, steam traps, pipe, valves, fittings and compressors."[2]

GASOLINE PLANT OPERATION

Absorption

The absorption oil, either mineral seal or kerosene distillate, is in the fat and lean oil tanks. Starting the oil pumps, we circulate the oil through the cooling coils, absorber, interchangers, preheater, evaporator and dephlegmator. Now start the water pumps and put water over the cooling tower. Prime the gaso-water separators with water. The gas may now be turned into the absorber, after which we turn steam into the evaporator, and check up the pressures, trying at the beginning of operation to maintain the following:

Steam pressure-evaporator	110 lbs.
Agitation steam	40 lbs.
Condensing pressure	25 lbs.
Run down tank	15 lbs.
Fat tank	5 lbs.

When the temperature of the fat oil leaving the still rises to about 150 degrees Fahrenheit turn steam into the preheater and maintain about 100 pounds of steam. Endeavor to maintain a temperature of about 210 degrees Fahrenheit on the vapors leaving the dephlegmator.

The production coming through the lookbox may be dirty, as the lines are all being flushed. This product will have to be rerun.

The reflux which is knocked down in the dephlegmator knockout box is being taken through the reflux gaso-water separator into the reflux tank and will start into the top of the evaporator as soon as the level rises to a point where the float opens the reflux pump steam line.

After operating about an hour, a sample of gasoline from the stream may be run to determine its properties and the adjustments necessary. If the sample shows too high an endpoint, try to adjust it by direct method, which consists in lowering the temperature of the dephlegmator not more than two degrees at a time by further opening the oil inlet valve to the dephlegmator.

One should bear in mind that the lowering of the endpoint of the gasoline can also be accomplished indirectly by increasing the condensation pressure. As this change also affects other properties of the final product and the plant efficiency, it is advisable to use the direct method whenever possible.

If the sample shows insufficient distillation recovery, adjust by increasing the agitation steam pressure not more than 5 pounds at a time. This will also increase the endpoint of the gasoline. A coordination of adjustments should be maintained.

Higher recovery can be obtained by decreasing the condensation pressure. This action increases the endpoint of the gasoline and should be closely watched. Do not decrease condensation pressure more than one pound at a time, as sudden changes might cause the evaporator to carry over.

Adjustments

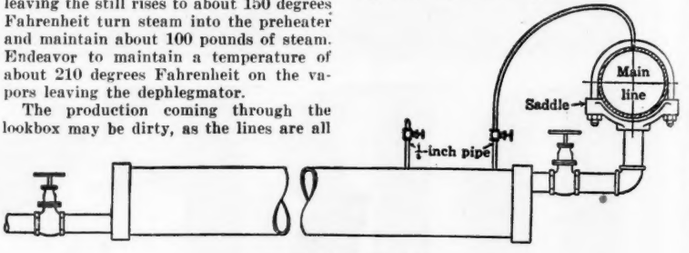
The endpoint and recovery are the principal requisites of gasoline specifications of the present day. Therefore the following adjustments are worthy of deliberate consideration.

1. The increase of agitation steam pressure results in the decrease of the gravity of the product, increase of distillation recovery and endpoint.

2. The increase of condensation pressure results in the increase of the gravity and the decrease of the recovery and endpoint.

3. The increase of dephlegmator temperature results in the decrease of gravity and increase of recovery and endpoint.

The decrease of agitation steam and condensation pressures and dephlegmator temperature result in the opposite changes above enumerated with reference to gravity, recovery and endpoint.



Construction of line drip.

In order to meet specifications and obtain the maximum quantity with a minimum loss, the following points are presented for the guidance of the operator:

Increased production can be obtained by producing the highest possible gravity of gasoline within the sales contract specifications.

Operate each apparatus at its maximum efficiency.

The stripping of the gas is in direct proportion to the temperature of the oil and shows a marked falling off when the temperature rises above 70 degrees Fah-

(Continued on Page 167)

OIL CIRCULATION PER GALLON GASOLINE PRODUCED

Pressure pounds	Mineral seal gals.	Kerosene distillate gals.	Pressure pounds	Mineral seal gals.	Kerosene distillate gals.
0	40	50	70	9	12
5	35	47	80	8½	11
10	30	38	90	8¼	10¼
15	26	31	100	8	10
20	22	27	150	8	9
30	18	21	200	8	9
40	14½	17	300	8	9
50	12	15	400	8	9
60	10½	13	500	8	9

*This is the thirteenth of a series of articles on air and gas lift. The first article of the series was published in the April 18 issue of The Oil and Gas Journal; the second, May 2; the third, May 30, the fourth, July 11; the fifth, August 15; the sixth, August 22; the seventh, September 12; the eighth, September 26; the ninth, November 14, 1929; the tenth, January 2, 1930, the eleventh, January 9, and the twelfth, January 23.

[2] J. A. Campbell.

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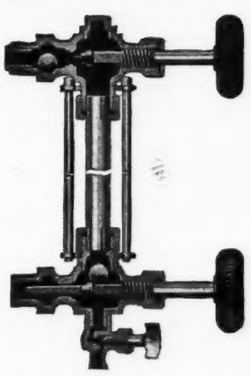

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THE leadership of Penberthy Products is the inevitable result of years of conscientious effort to put better materials and a greater measure of skill in their manufacture.

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IMPORTANT DEEP SAND DISCOVERY IN NORTH BELRIDGE, CALIF., POOL

By L. P. Stockman

LOS ANGELES, Calif., Apr. 28.—The Belridge Oil Co. proved up the existence of a new deep productive zone in the North Belridge Field of Kern County this week when No. 15 fee in Section 26-27s-20e, Mount Diablo base and meridian, was brought in under a natural flow doing 200 bbls. of 55 gravity oil and 3,600,000 feet of gas daily from the Vaqueros sand at 5,088 feet.

This is the most important completion in California since the Milham Exploration Co. finished its discovery well in the Kettleman Hills Field in October, 1928. The significance which attaches to the completion of the Belridge's new well lies in the fact that it greatly enhances the possibility of developing similar deep Vaqueros production in other adjacent shallow fields of Kern County and opens up a tremendous amount of wildcat acreage as possibly productive from the same formation.

In view of the discovery in the North Belridge Field it is quite possible that deep Vaqueros production may also be developed at South Belridge, McKittrick and Lost Hills with a good possibility that this formation may also be found productive at Midway and Sunset and other shallow proven fields located along the western edge of the San Joaquin Basin.

It is a little too early to say definitely that Vaqueros production will be developed in any of these additional fields but there is no questioning the fact that this is more than a mere possibility. Conditions are extremely favorable from a geological standpoint. The Belridge Oil Co.'s find is generally regarded as being one of the most important discoveries in the long history of oil development in Kern County as it may result in the discovery of additional deep zones in present fields and lead to aggressive wildcatting.

The situation is full of dynamite from a production standpoint as it is quite obvious that it would not require very much of this high grade crude oil to completely upset the economic balance.

The San Joaquin Valley fields are free from town lot development but this is offset by the potency of the Vaqueros sand especially if it is found productive and developed simultaneously in several areas. Some discussion has already been started as to the possibility of retarding future drilling until conditions improve and while something tangible may result from this movement the final outcome remains to be seen.

Producers in the San Joaquin Basin have been holding the sack all during the period of overproduction in southern California which started in 1921 and they are consequently anxious to get started. The initial production of the Belridge Oil Co.'s new well is somewhat disappointing but at the same time it must be remembered that considerable quantities of heavy mud may have been pumped into the hole at frequent intervals to kill the gas pressure. This is probably the cause for such small production with the small penetration also a contributing factor. Producing wells at Kettleman Hills require from 200 to several hundred feet of formation while the new well at North Belridge only has 154 feet of hole open below the 6⅝-inch water string landed at 4,934 feet. It is quite likely therefore that with additional penetration and under more favorable mechanical conditions substantial production may be developed.

In the Buttonwillow gas field of Kern County General Petroleum's No. 1 Morris in Section 6, blew in flowing 6,000,000 feet of gas daily from 2,706 feet but was subsequently mudded off and killed in order that the hole may be carried down in search of crude oil production.

The dry gas production secured in this well is common to this area as the well in question is not far removed from several large gassers finished by the Milham Exploration Co. which concern has revealed the possibilities of commercial gas production. The two deep tests being drilled at Buttonwillow in search of crude oil production may bear watching as this section has possibilities.

THE OIL MAN'S CALENDAR

May 1—New York, meeting, general committee A.PI., Division of Refining, Institute headqurters.

May 1—New York, meeting, Central Committee on Unit Operation, A.P.I. Division of Production, Institute headquarters.

May 1—New York, regular meeting, A.P.I. Board of Directors, institute headquarters.

May 5-6—Tulsa, meeting, Central Group, A.P.I. Committee on Automotive Transportation, Mayo Hotel.

May 5-8—New Orleans, La., convention, Natural Gas Department, American Gas Association, Roosevelt Hotel.

May 12-15—Atlantic City, N. J., annual meeting, National Fire Protection Association, Hotel Haddon Hall.

May 14—Milwaukee, Wis., meeting, Wisconsin Petroleum Association, Hotel Pfister.

May 19-20—San Antonio, Tex., National Oil Scouts Association of America.

May 20-22—Tulsa, annual meeting, Natural Gasoline Association of America, Mayo Hotel.

May 21-23—Los Angeles, Calif., National Foreign Trade Conference.

May 23-24—Tulsa, spring meeting, Mid-Continent section, A.P.I. Division of Production, Mayo Hotel.

May 23-24—Tulsa, Mid-Continent Oil Scouts and Land Men's Association.

May 25-29—French Lick Springs, Ind., summer meeting, Society of Automotive Engineers.

May 30—Indianapolis, Ind., annual 500-mile automobile race, Speedway.

June 4—Norman, Okla., Opening of Petroleum Engineering Field Course, University of Oklahoma.

June 12-13—Charleston, W. Va., annual convention, West Virginia Oil Marketers Association, Daniel Boone Hotel.

June 16-25—Berlin, Germany, World Power Conference.

June 23-26—San Francisco, Calif., convention, American Railway Association.

June 23-27—Atlantic City, N. J., annual meeting, American Society for Testing Materials.

September 2-4—Toronto, Ontario, North American Gas Tax Conference, King Edward Hotel.

September 29-October 4—Pittsburgh, Pa., petroleum section, National Safety Council.

October 14-16—Kansas City, Mo., convention, Big Four State Jobbers.

N. G. E. IN LARGER QUARTERS

Increased volume of business, requiring larger stocks and quicker deliveries of Wilgus pressure regulators, N.G.E. gas burners, and Anubis differential pressure recorders in the Mid-Continent has made necessary the removal of the Tulsa offices of the Natural Gas Equipment, Inc., from the Atco Building to larger quarters at 311 East Second Street. Virgil E. Ready has been assigned to the new Tulsa office as resident manager, and Julian C. Monax as sales manager.

High Spots in Field News

EAST CENTRAL TEXAS
Eastern Henderson County test not appearing favorable for production.

SOUTHWEST TEXAS
Big gas well north of Pettus Field. Showed little oil and may open new pool.

NORTH TEXAS AND PANHANDLE
Good wells in Gray County increase Panhandle output. Cooke County discovery interesting.

KANSAS
Voshell deep sand responsible for production increase in State. Central and western areas active.

NORTH LOUISIANA-ARKANSAS
Jackson anticline well shows gas, third test more encouraging. Pleasant Hill wildcat blows in as gas well.

WEST TEXAS
Slight northern extension to Penn Pool, Ector County. Scurry County wildcat estimated 10 bbls. Ogden Pool test nearing pay.

ROCKY MOUNTAIN AREA
Pennsylvania test in Moffat County, Colorado. Railroad completed into Lea County, New Mexico, will speed up operations.

CALIFORNIA
Crude situation still disturbing. Three more operators attack gas law in court. Important deep discovery in Belridge Field.

OKLAHOMA
Big Cromwell sand wells in Konawa. Oklahoma City production reaches new peak of 146,795 bbls. Chandler area growing in importance.

GULF COAST
Production decline reported. Deep sand in Refugio looks like shoestring. Cedar Bayou Dome prospect into oil. Cameron Parish wildcat has oil shows.

Late Fields

GULF COAST

HOUSTON, Tex., Apr. 29.—The Hankamer Field of southern Liberty County was extended 500 feet to the east Tuesday with the completion by Gulf Production Co. of No. 5 Boyt flowing an estimated 700 bbls. of oil daily from a sandy shale at 2,761-91 feet. This is the fourth producer completed in the field opened late in 1929.

Gulf Refining Co.'s No. 18 United Land Co., Sorrento, Ascension Parish, Louisiana, was completed Tuesday flowing 350 bbls. of oil from cap rock at approximately 1,650 feet.

OKLAHOMA

The Oklahoma City Pool was extended a quarter of a mile west when Hall & Briscoe's No. 1 Lindsay, NE cor. SE NW, Section 14-11-3w, blew in making 484 bbls. in 50 minutes, and a 30,000,000-foot per day gas production. The oil was found in Simpson sand at 6,389-6,461 feet, which is considered high for that area. The well made 5,186 bbls. the first 12 hours.

The production of the Oklahoma City Pool on the gauge of April 29, was 144,857 bbls. from 44 wells.

Indian Territory Illuminating Oil Co.'s No. 3 Werner-Farley, SW cor. NE SE, Section 23-11-3w, on the west side of the pool, blew in making 63 bbls. the first 15 minutes, and 224 bbls. the following hour. The first 12 hours' gauge was 2,096 bbls. from Simpson sand at 6,311-6,570 feet.

Skelly Oil Co.'s No. 4 Hoopes, SW cor. NW NE, Section 31-11-2w, was brought onto production and made 4,976 bbls. the first 14 hours. The production was found in the Simpson sand at 6,403-93 feet. The gas volume was estimated at 51,000,000 feet per day.

Indian Territory Illuminating Oil Co.'s No. 3 Werner-Speegle, SE cor. SW SW, Section 24-11-3w, blew in making 204 bbls. the first hour, against back pressure of 475 pounds. The oil was found in the Simpson sand at 6,285-6,560 feet, the total depth was 6,564 feet. It was estimated to be making 20,000,000 feet of gas.

Continental Oil Co.'s No. 1 Brown, CNL N half SW, Section 10-20-4w, southwestern Garfield County, was shot at 5,938-48 feet and made 760 bbls. in 24 hours on the gauge of April 29.

Reiter-Foster Oil Corp.'s No. 1 Finnell, C NE NW, Section 8-19-1w, northwestern Payne County, gauged 745 bbls. on April 28.

Payne Drilling Co.'s No. 1 Bullock, SE cor. NE, Section 22-6-3, a wildcat in southern Pottawatomie County, made 885 bbls. on the gauge of April 29.

KANSAS

The Schurr Pool in Rice County, Kansas, was extended a quarter mile east when the Allison-Fitzwilliam Petroleum Corp. drilled in the fifth producing well

(Continued on Page 146)

AUTOMOTIVE GROUP TO MEET

Central group, American Petroleum Institute, Division of Production, Committee on Automotive Transportation, will meet in Room W, Mayo Hotel, Tulsa, May 5 and 6. it was announced Tuesday. R. F. Fike, of the Mid-Continent Petroleum Corp., Tulsa, is chairman of the group. Among features of the two-day program will be discussion of uniform weight and speed laws.

SCORE CARD ON OIL PRODUCTION

Below is shown allotted average daily production, April to December, inclusive, suggested by the Committee on Economics of the Federal Oil Conservation Board, and the actual average daily production during the past week:

	Allotted (bbls.)	Actual (bbls.)	Over (bbls.)	Under (bbls.)
California	610,000	627,500	17,500	.....
Oklahoma	655,000	661,200	6,200	.....
Texas	750,000	830,913	80,913	.....
All others	480,000	460,107	.....	19,893
Total	2,495,000	2,579,720	104,613	19,893

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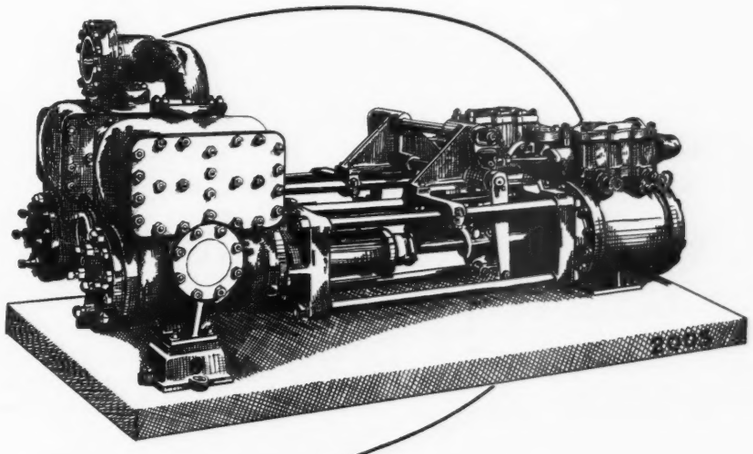
Because there is a TRANSIT PUMP for every refinery service, we are in a position to furnish just the right pump to fit the particular service you specify. This to our minds, is a wonderful prescription for refineries with pump troubles.



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Salt Lake City, Utah.
REEVES & SKINNER MACHINERY CO.
St. Louis, Mo.

Big Cromwell Sand Wells in Konawa

Production of Oklahoma Increases With Growth of Oklahoma City Pool. Chandler Area Grows in Importance

By W. A. Spinney
Staff Correspondent, Oklahoma Fields

Oklahoma daily average production for the week ending April 26, shows an increase of only about 4,000 bbls. from the preceding week, the total daily average being approximately 661,200 bbls. Slight declines were noted in the Seminole area while Oklahoma City's production reached a new peak on April 23, when the pool made 146,795 bbls. from 50 wells. In the Konawa area, W. B. Pine's No. 1 Charley, NE cor. NW SW, Section 16-6-6, Seminole County, which found oil about a week ago and was estimated to be the largest well in the pool to date, was opened part way April 25 and made 3,492 bbls. in 12 hours from sand at a total depth of 2,874 feet. The second large well in the area was found by the Twin State Oil Co. in its No. 2 Charlie, SW cor. NE NE, Section 20-6-6. It made 300 bbls. in 20 minutes from a sand at 2,955-62 feet. Wells in this area are allowed to take their potential gauges before shutting in for 15 days, the regular proration period. The new well will be shut down during the proration period before its potential gauge.

In the Konawa Pool nine failures have been completed in four different sections surrounding the large producers. Eight of the failures were found in Section 21-6-6, where one of the large gushers is located. The failures were the Twin State Oil Co.'s No. 1 Charlie, SE cor. NE NE. Section 20-6-6, a hole full of water at 3,030-65 feet; Prairie Oil & Gas Co.'s No. 1 Fleet, SW cor. NW NW, Section 21-6-6, water at 3,133-37 feet; Prairie Oil & Gas Co. and Tom Slick Oil Co.'s No. 1 Amey, SW cor. SW NW, Section 21-6-6, water at 3,112-15 feet; No. 2 Amey, NW cor. SW NW, Section 21-6-6, water at 3,160 feet; No. 3 Amey, SE cor. SW NW, Section 21-6-6, water at 3,152 feet; Gypsy Oil Co.'s No. 1 Hepsey, SW cor. SE NW, Section 21-6-6, water at 3,041 feet; Harris and others' No. 1 Burgess, NW cor., Section 21-6-6, water at 3,088 feet; Reynolds and others' No. 1 Dameron, NW cor. SE NE, Section 16-6-6, dry at a total depth of 3,295 feet. Hilton Phillips and others' No. 2 Hyde, NE cor. SE NE, Section 20-6-6, water at 3,050 feet. In Sections 16 and 17-6-6, four wells made more than 1,000 bbls. daily, while nine other completions made less than that amount.

Magnolia Petroleum Co.'s No. 1 Jackson, SE cor. SW NE, Section 17-7-8, east of the Little River Pool, made 92,000,000 feet of gas from the Wilcox sand at 4,233-54 feet. The casing was cemented and the well was blowing open until the cement dries.

Garfield Wildcat Given Shot

Continental Oil Co. and Barnsdall Oil Co.'s No. 1 Brown, CNL N half SW, Section 10-20-4w, southeastern Garfield County, was shot with 20 quarts from 5,928-48 feet, and flowed 598 bbls. in 16 hours and 818 bbls. in 24 hours. Operators expect to give the well another shot in a few days. The well was plugged back from a total depth of 5,973 feet where a showing of water was encountered.

The deepest drilling test in Oklahoma, Sinclair Oil & Gas Co.'s No. 1 Howell, C SW SW, Section 14-26-24w, Harper County, was drilling at 8,506 feet.

Oklahoma City Pool

During the week Tom Slick Oil Co. and W. H. Atkinson's No. 1 Houghton, Section 1-11-3w, in the north end of the Oklahoma City Pool blew in, flooding the separators after being bailed down and flowing 15 minutes. It made 152 bbls. and what was estimated to be 30,000,000 feet of gas and then shut in. The connections began leaking as the pressure increased. The well is producing from a total depth of 6,455 feet in Simpson sand. It will be given a 12-hour production test later when new connections have been installed.

Tom Slick Oil Co., Anderson & Prichard's No. 1 Hoopes, NW cor. SW NE, Section 31-11-2w, was first brought in March 12 when it made an initial production of 1,064 bbls. the first 12 hours from a total depth of 6,508 feet. The operators were not satisfied and decided to drill it deeper. Mud and water were pumped into the well preparatory to drilling deeper. It was later drilled to a total depth of 6,634 feet and was again bailed down. The output from the new total depth was apparently larger.

Interest was aroused in the territory north of the capitol by the Cromwell-Franklin Oil Co.'s No. 2 Thompson, SW cor. NE, Section 15-12-3w, when the test encountered a showing of oil and then shut down for a production test. It is the only drilling test thereabouts and it is located 4 miles north and 1½ miles west of the most northerly producer in the Oklahoma City Pool. Cores were taken at 4,115-32 feet. A showing of heavy black oil was found in the core and the "bleeding core" also showed some water. The test will probably be drilled deeper.

Another hole full of water was the result of the third shot in the Prairie Oil & Gas Co. and others' No. 1 Sudik, C NE NE, Section 8-10-2w, a wildcat test in Cleveland County. A 200-quart shot was placed at 5,240-5,310 feet and a hole full of water was the reward. No oil was showing and the operators were planning to plug back again to the 5,000-foot level for the last shot. Operators advise unless this shot uncovers some oil or gas production the test will be abandoned. Before plugging back the test was drilled to the Wilcox sand at 7,716-20 feet where a hole full of water was encountered.

19,580 Bbls in 24 Hours

Skelly Oil Co.'s No. 1 Dunn, C E half NW SW, Section 1-11-3w, in the north end of the field, was completed during the week. The well made 6,985 bbls. the first eight and one-half hours and was then shut in until next day when it was allowed to produce 5,830 bbls. in seven hours, later making a total of 19,580 bbls. in 24 hours. The oil was found in the Simpson sand at 6,365-6,440 feet. It is the only well that company has in the northern end of the pool. The first hour's gauge was 885 bbls., the second was 855 bbls., third 785 bbls., fourth 800 bbls. Gas was estimated at 15,000,000 feet.

West of the Oklahoma City Pool George D. Warr and others' No. 1 Castle, SW cor. NW, Section 20-11-3w, Oklahoma County, a wildcat encountered another showing of oil at 4,580 feet and was drilling deeper at 4,650 feet. This well has had two other showings.

Phillips Petroleum Co. has entered the Oklahoma City area by recently purchasing considerable acreage in the northeastern part of the county, and also just across the line in Logan County. Part of the acreage is in Townships 14-1w and 15-1w.

Another outlet for the natural gas produced in the Oklahoma City Pool was announced during the week when the Phillips Petroleum Co. and Oklahoma Natural Gas Corp. formed a new company, the Philokla Gas Co. The purpose of the new company is to compress the natural gas in the Oklahoma City Pool, and remove the gasoline from it and then return the residue to the different leases for fuel and for the operation of the gas lift. In addition to offering the operators in the field an outlet for the gas, the new company will also eliminate the necessity for individual operators in the area building repressuring plants to help produce the production on each lease when it becomes necessary to lift the oil.

Good East Side Well

On the east side of the pool the Coline Oil Co. completed its No. 3 Warren, NW cor. SW SW, Section 18-11-2w. It was bailed in but no gauge was taken as it was immediately shut in. The total depth of the well was 6,327 feet, which is high for that part of the pool. Some estimated the production at 10,000 bbls. a day.

Indian Territory Illuminating Oil Co.'s No. 5 Jones, SE cor. NW, Section 31-11-2w, in the south end of the pool, the north offset to the same company's No. 1 Mary Sudik, the wild well of a few weeks ago, was completed and blew in making 177 bbls. in 15 minutes, with about 15,000,000 feet of gas and 5,200 bbls. in 12 hours. The total depth of the well is 6,625 feet in the Simpson sand. It is believed the well may drill itself in deeper and becomes as large a producer as the Mary Sudik.

Chandler Pool Activity

The deeper producing level in the new Chandler Pool is causing that area to be one of the most active in the eastern part of the State. Old producing wells are to be redrilled to the new deep pay horizon. Two of the older producers were preparing to deepen and eight new locations were made in the area surrounding the Magnolia Petroleum Co.'s new wells west of Chandler. Some oil has been produced in the area for several years from a shallow horizon and considerable testing by the Magnolia Petroleum Co. has been in progress. It was not until a short time ago, when the Wilcox sand was found productive, that activity started in earnest.

The first well completed in the deep pay was the Magnolia Petroleum Co.'s No. 1 Meyers, NW cor. NE NE, Section 17-14-4, Lincoln County. The well made an initial production of 1,088 bbls. from the Simpson pay at 4,994-96 feet, and is now averaging about 750 bbls. a day. Same company's No. 1 Decker, SE cor. SW SE Section 8-14-4, was the next well to produce from the Simpson sand. It is making around 350 bbls. a day. It is a diagonal offset to the Myers well. No. 2 Decker, SW cor. SE, Section 8-14-4, found production in the Hunton lime at 4,675 feet, and made 1,865 bbls. the first 24 hours, having been completed about 10 days ago. The well went dead April 19, and the operators were rigging up to attempt to recover the drill pipe left in the hole. Many believe this has caused the hole to bridge and cut off the flow of oil. The next well was an old producer drilled deeper from the 3,200-foot horizon to the Wilcox sand, where it made 3,472 bbls. on the best day's gauge. It was the Magnolia Petroleum Co.'s No. 2 Benedict, NE cor. SE NW, Section 7-14-4, more than a mile to the northwest. It had the pay sand at 5,070-77 feet, and gauged 1,588 bbls. the first 18 hours with a back pressure of 200 pounds. The well averaged 2,365 bbls. during the week ending April 23. The next test expected to reach the pay horizon is the Magnolia company's No. 3 Straubus, NW cor. SW SE, Section 8-14-4, which was drilling at 4,920 feet. Other producing wells preparing to deepen were the same company's No. 1 Benedict, SE cor. NE, Section 7-14-4, which was drilled to a total depth of 3,343 feet, and pumped 100 bbls. daily and Tom Slick Oil Co. and Prairie Oil & Gas Co.'s No. 2 Norton, NW cor. SW NE, Section 7-14-4, which was completed for 75 bbls. from the pay sand at 3,280-3,310 feet. Both were rigging up for deeper drilling.

Caddo County Deep Sand

Mid-Kansas Oil & Gas Co. and Ramsey Petroleum Co.'s No. 1 E. M. Rowe, SW cor. NW NE, Section 36-6-10w, Caddo County, was drilled deeper from

(Continued on Page 68)

WILDCAT OPERATIONS IN OKLAHOMA

(Descriptions are East and North unless marked otherwise)

NORTHERN OKLAHOMA

ALFALFA COUNTY

Company, farm and location—	Remarks:
Smith Brothers' No. 1 Forbes, SE cor. NW NW Sec. 12-27-11w	Shut down 1,232 ft.
J. W. Bailey's No. 1 Acre, SW cor. NE Sec. 14-24-11w	Rigging up standard tools 4,680 ft.; cleaning out.

BECKHAM COUNTY

Ray Johnson and J. R. Cuniff's No. 1 Brower, C NW Sec. 29-10-22w	Rig.
Producers Exploration Co.'s No. 1 Seidell, SE cor. SW SW Sec. 17-9-22w	Shut down 2,402 ft.
Carson et al's No. 1 Danby, SW cor. SE NE Sec. 20-8-22w	Shut down 1,575 ft.

BLAINE COUNTY

Lowen et al's No. 1 Unknown, NW cor. SW NW Sec. 17-16-11w	Spudded and shut down.
Washoma Oil Co. et al's No. 1 Phillips, C NW SW Sec. 12-19-10w	Shut down 2,935 ft.

CADDO COUNTY

Abernathy & Brown's No. 1 Horton, SE cor. Sec. 8-6-13w	Abandoned 596 ft.
W. J. Hartley's No. 1 Galbreath, SE cor. NW SE Sec. 29-5-12w	Shut down 3,394 ft.

CLEVELAND COUNTY

Harris et al's No. 1 Highbee, SE NW Sec. 20-6-1	Shut down 5,350 ft.
Daniels & LeWright's No. 1 Vandever, C SW Sec. 15-7-1w	Shut down 3,130 ft.
Phillips Petroleum and T. B. Slick's No. 1 Sudick, NE cor. NE Sec. 8-10-2w	Wilcox 7,716-20 ft.; water; shut down; plugging back to 6,900-7,000 ft.; water.

COAL COUNTY

W. E. McGraw's No. 1 King, C SW NE Sec. 11-1-8e	Drlg. 2,965 ft.

COMANCHE COUNTY

V. Wright's No. 1 Indian Land, SE SW Sec. 29-2-9w	Shut down 1,701 ft.
G. W. Stogner's No. 1 Doebel, C SW SW Sec. 3-3-9w	Shut down 1,450 ft.
Green et al's No. 1 Wilson, C NE SW Sec. 14-1-12w	Shut down 4,055 ft.

GARFIELD COUNTY

Shell Petroleum Corp.'s No. 1 Loomis, C NW NW Sec. 32-23-4w	Drlg. 5,165 ft.
Continental and Barnsdall's No. 1 Brown, CNL SW Sec. 10-20-4w	Drlg. 5,948 ft.; flowed 1,065 bbls.

(Continued on Page 155)

Dubbs oil cracking units are making money for refiners in practically every oil refining state in the Union and in seventeen foreign countries

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Wildcat Work Features Kansas News

Voshell Deep Sand Responsible for Production Increase in State. Central and Western Area Very Active

By W. A. Spinney
Staff Correspondent, Kansas Fields

The estimated potential production of the Voshell Pool, in McPherson County, Kansas, was 55,000 bbls. on April 26. This pool has caused the State's production to increase until this week's gauge, ending April 26, shows the State's daily average to be 125,350 bbls., which is a new peak for the year. Production in the pool has exceeded all predictions since the deeper Silicious lime horizon was found productive. Gas production is becoming an important source of revenue to operators in the southern part of the State, where several gas areas were extended during the week.

Allison & Fitzwilliams' No. 1 Metzger, SW cor. SE NE, Section 21-20-10w, Rice County, filled up 2,300 feet with oil in five hours. The oil was encountered in the Silicious lime at 3,368-73 feet. The well extends the production in the Schurr Pool, and is the only drilling operation close to the producing wells in the pool, allowed by the proration committee.

Central and western Kansas are again receiving the attention of operators. That big area is becoming active due to recent wildcat tests in different counties finding production. A number of other drilling tests are also being watched and all available acreage is being leased for production.

The latest county in western Kansas to be tested for oil and gas is Gove. The well is being drilled by Boucher Oil & Gas Co. and A. M. Valerius in the NW cor., Section 24-13-27w. The nearest production is in Trego County about 50 miles east.

A new test has been announced for southeastern Kiowa County. The rig is up and it will be drilled by Phillips Petroleum Co. and Prairie Oil & Gas Co., NE cor. SE, Section 10-30-17w, southwest of Belvidere. The test is expected to be drilled to a depth of more than 5,000 feet if necessary.

Silicious Lime Test in Rice

Attention is expected to be directed to the Schurr Pool in Rice County as the Allison-Fitzwilliam Corp. and others' No. 1 Metzger, SW cor. SE NE, Section 21-20-10w, plans to drill into the Silicious lime pay in a few days. The 6-inch casing was being landed at 3,260 feet where oil rose 1,700 feet in one hour. The first showing of oil was encountered at 3,115 feet; and gas was found at 3,125 feet. If commercial production is found in this test it will extend the pool a quarter mile to the east. Another community test in the northwestern part of Rice County has spudded. It is Carter Oil Co., Shell Petroleum Corp., Empire Oil & Refining Co., J. A. Hull, and Tatlock and others' No. 1 Ploog, C SW SE, Section 33-18-9w, northwest of Lyons.

Two interesting tests were announced for Rice County during the week. Shell Petroleum Corp. and McPherson Oil & Gas Co.'s No. 1 Jennings, C NW, Section 29-18-6w. The location is north of the Welch Pool and northeast of Lyons. It is on a core drilled structure and close to other tests, one drilled by Slick and others in the NE cor. SW NW, Section 1-19-7w, about 2½ miles southwest, that had a showing of oil, and another by Frates and others in the SW cor. NE, Section 10-18-6w, which also had a showing of oil and gas. The other wildcat test is to be drilled by the same companies in the C SW, Section 33-19-6w, Rice County, where the companies have about 8,000 acres under lease.

Selby Oil & Gas Co. has completed a new well in Coffey County. No. 1 Scott, NE cor. SE SW, Section 13-23-14, encountered pay horizons at 1,585-1,622 feet, where the oil rose in the hole 600 feet, and it was estimated to be a 25-bbl. well, naturally.

Skelly Oil Co. has added another well to its production in Greenwood County. No. 13 Shepard, SW cor. SE SW, Section 2-22-10, in the Souder Pool, of Greenwood County, swabbed 105 bbls. after a shot of 100 quarts in the Bartlesville sand at 2,069-2,116 feet.

Test for Saline County

Dixie Oil Co. has announced a new location in Saline County, on its core drilled block. The location is in the NE cor. SE, Section 9-16-3w, south of Salina, Saline County, about three-fourths of a mile southwest of its No. 1 Olson, which had a showing of oil in the Viola and Simpson formations and was abandoned.

Several wildcat tests in Reno County, located in the southern half of the county, are being drilled on favorable structures. Shell Petroleum Corp. and others' No. 1 Toun, C NW NW, Section 17-25-4w, Reno County, was drilling below 3,000 feet. Independent Oil & Gas Co.'s No. 1 Doles, SE cor. NW, Section 31-25-4w, was drilling below 2,650 feet. The community test being drilled by H. F. Wilcox Oil & Gas Co., Carter Oil Co., C. A. Cheney and M. M. Valerius, NE cor. SE NE, Section 6-26-7w, was drilling at 2,400 feet. It is located about a mile east of an old test drilled on the Hopper farm in Section 7-26-7w, which had several showings of oil and gas. The Lario Oil & Gas Co. has made a new location in the southeastern part of the county, in the NE cor. SE, Section 14-26-5w, Reno County.

In McPherson County some wildcat tests are drilling which may extend the producing areas around the Voshell Pool and the Ritz Pool. One of the tests being watched is McBride, Inc.'s No. 1 Wainwright, NE cor. SW, Section 30-19-1w, just east of the town of McPherson. It was drilling below 1,000 feet. The test is a probable extension to the Ritz area. Helmerich and Payne's No. 1 Kaufman, NW cor. NE NW, Section 22-21-3w, about a mile south of the production in the Voshell Pool, found oil in the chat at 3,100 feet, and after drilling to 3,175 feet made a production test. It swabbed 100 bbls. of oil and 100 bbls. of water. The crew is underreaming to a total depth of 3,170 feet to land the casing and shut off the water. Many believe the test is running lower structurally than the producing wells in Section 9-21-3w, which is the main part of the pool. Some producing wells have been found on the east flank of the structure in Section 10-21-3w, and the production may extend as far south as Section 22-21-3w.

After finding several showings of oil and gas which gave encouragement to its operators, the wildcat test of Mrs. Margaret L. Gay and others, No. 1 Grove, NW cor. NE NW, Section 29-23-1w, Harvey County, northeast of Halstead, is being abandoned at a total depth of 3,614 feet.

North of Halstead in Harvey County, The Shell Petroleum Corp.'s No. 1 Palmer, in Section 36-22-2w, produced 160 bbls. of oil cutting 3 per cent. To the south the McPherson Oil & Gas Co. is attempting to restore the No. 2 Haury in Section 11-23-2w. The test had a showing of oil in the chat which was short lived.

A new well in Barber County extends gas production more than a mile to the southwest, proving a productive area of about 2,500 acres. It is the Barber Oil Co.'s No. 1 Alexander, NW cor., Section 24-33-13w, 12 miles southwest of Medicine Lodge. The well was estimated to be making 26,000,000 feet of gas from a total depth of 4,465 feet. The operators plan to drill deeper and believe it will increase the gas. The gas sand was topped at 4,446 feet, where it encountered about 4,000,000 feet of gas, and with deeper drilling it increased to 26,000,000 feet at the present depth. The crew is fishing for tools which were lost at this depth. It is the fifth gas well completed in the pool, all owned by the same company.

Big Lease Purchase in Barber

Skelly Oil Co.'s No. 1 Temple, SE cor. NE, Section 13-24-15w, in the southwestern part of Barber County, only a few miles north of the Oklahoma state line, encountered a showing of oil in the Viola lime at 5,241-46 feet. The casing was cemented on top of the showing and the test is shut down. Owing to the showing of oil the company has recently purchased approximately 30,000 acres in the vicinity of the wildcat test. The same company is also interested in Pawnee County, and has erected a rotary rig for a wildcat test in the C SE, Section 34-23-17w, Pawnee County. The location is about 10 miles north of the new wells in Edwards County, drilled by British American Oil Co., Continental Oil Co. and Barnsdall Oil Co., and the Amerada Petroleum Corp.

Oil exploration in the newly discovered area northeast of Augusta in Butler County, gained momentum during the week when another test was staked which is to be started immediately, by Tom C. Johnson in the NE cor. SE, Section 12-27-3, Butler County. The test is 1½ miles southwest of the new well owned by Stearns & Streeter and Sullivan & Melrose in the NE cor. SW, Section 6-27-4, which is estimated as a 400-bbl. well from the Simpson series at 2,924-27 feet. Offsetting acreage to the new test is owned by Empire Oil & Refining Co. and The Texas Company.

In the older areas southwest of the Eldorado Field, Empire Oil & Refining Co. has made locations for No. 98 Koogler, SW cor. SE NW, Section 19-26-5, Butler County. The company has been steadily drilling the Koogler-Hess area securing average sized wells in the Viola and Wilcox horizons. In the southwestern part of Butler County, Agate Oil Co. is starting an interesting wildcat test, No. 1 Tague, NW cor. SE, Section 20-29-4, south of Douglass.

Wentz Oil Corp.'s No. 7 Bright, NW cor. SE SW, Section 1-26-1w, in the Valley Center Pool, Sedgwick County, made 450 bbls. swabbing from the Simpson pay. Same operators plan to test the Kansas City lime on this lease by drilling a twin well to No. 4 Bright, on the west side of the pool. Other wells drilled to the regular Simpson pay in the pool, have had showings of oil from the Kansas City lime.

Gus Sheedy and others' No. 6 Hughes, SE cor. NW, Section 19-21-10, Lyon County, swabbed 35 bbls. in 18 hours from the Bartlesville sand at 2,189-2,232 feet, after drilling to a total depth of 2,291 feet. The well was shot with 80 quarts and is estimated as a 25-bbl. pumper.

The location for the first deep test in the gas area in Stevens County was made during the week, the Agate Oil & Gas Co.'s No. 1, in Section 19-33-38w, Stevens County. The test is on a block of acreage about 8 miles southwest of Hugoton and may be drilled to a total depth of 6,000 feet, if necessary. The Argus Gas Co. also has an interest in the test.

Butler County

Elam and others' rig is up for No. 1 Hopkins, SE cor. SW SE, Section 26-23-4. Empire Oil & Refining Co. has the rig up for No. 8 Brandenberger "A," NE cor. SE NE, Section 22-27-5.

Chase County

E. W. Marland, Inc.'s No. 1 Altermus, SE cor. NE, Section 33-18-8, is dry and abandoned at 3,140 feet.

Coffey County

Hagberg and others' No. 1 Bahr, SE cor., Section 24-22-13, is spudding. Ellis and others' No. 1 Rossillian, SW cor. SE NW, Section 6-23-15, has been completed for 55 bbls. in sand 1,517-28 feet.

Cowley County

Lewis Production Co. made location for No. 2 Fitzgerald, NE cor. NW SW, Section 20-31-6. Derby Oil Co.'s No. 1 Hahn, SE cor. SW, Section 10-31-3, made 60 bbls. in sand 3,057-68 feet. Lewis Production Co. and Empire Oil & Refining Co.'s No. 2 Hill, SW cor. SE NW, Section 20-31-6, made 40 bbls. in sand 2,868-2,903 feet.

Ellsworth County

J. H. Tatlock and others' No. 1 Soekem, C SW SE, Section 25-17-9w, is dry and abandoned at 3,395½ feet.

Greenwood County

Independent Oil & Gas Co.'s No. 13

(Continued on Page 130)

WILDCAT OPERATIONS IN KANSAS

(Descriptions are East unless otherwise marked)

Company, farm and location—	Remarks:
BARBER COUNTY	
Skelly Oil Co.'s No. 1 Temple Ranch, SW NE Sec. 13-34-15w	Casing trouble 5,241-46 ft.
Phillips Pet. Co.'s No. 1 Powell, SE cor. SE Sec. 11-32-10w	Shut down 4,023 ft.
BUTLER COUNTY	
Elam et al's No. 1 Hopkins, SE SW SE Sec. 26-23-4	Rig.
Joe Liggett's No. 1 Guanther, C SE NE NW Sec. 29-26-7	Shut down 50 ft.
Martin et al's No. 1 Flanigan, C SW SE SW Sec. 29-27-3	Shut down 2,910 ft.
CHASE COUNTY	
Transcontinental & Cheney's No. 1 Wassel, NE SE Sec. 36-20-9	Drlg. 1,825 ft.
Urschell et al's No. 1 Lippa, C SW SW Sec. 27-18-6	Drlg. 1,990 ft.
Steinbuckel et al's No. 1 Stephenson, NE SW Sec. 4-20-6	Shut down 1,530 ft.
Steinbuckel et al's No. 1 Cook, SE cor. Sec. 21-19-8	Drlg. 2,545 ft.
E. W. Marland, Inc.'s No. 1 Altemus, SE NE Sec. 33-18-6	Wilcox 3,138-40 ft; wtr; abd.
CHAUTAUQUA COUNTY	
Valentine Oil Co.'s No. 1 Patterson, NW SE SW Sec. 2-33-9	Shut down 1,600 ft.
CLAY COUNTY	
Chrisler et al's No. 1 Tivier, SW cor. Sec. 19-8-3	Shut down 50 ft.
COFFEY COUNTY	
Kimsay's No. 1 Baker, SE cor. Sec. 24-22-13	Shut down 50 ft.
COWLEY COUNTY	
Roth & Faurot's No. 1 Adams, C SW NE NE Sec. 19-32-8	Drlg. 1,400 ft.
Prairie O. & G. Co.'s No. 1 Dosbaugh, SE cor. Lot 27, Sec. 18-32-8	Underreaming 2,785 ft.

(Continued on Page 156)

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Jackson Anticline Well Shows Gas

Third Test on Structure Is More Encouraging Than Its Predecessors. Another Pleasant Hill Wildcat Blows in as a Gasser

By D. H. Bancroft
Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., Apr. 28.—Mississippi was the object of attention again this week when the third well on the Jackson anticline made a better show of gas than either of its predecessors. Extensions promised in the two Sabine parish areas, a series of dry holes in Carterville and disappointment north of R. O. Roy's producer in the wildcat Holly district of DeSoto Parish were in the news. A wildcat in the Pleasant Hill district of Sabine repeated the performance of a prior test by blowing in as a gasser.

Love Petroleum Co.'s No. 1 Mendoza Outing Club, in Section 11-5-1e, Hinds County, on the outskirts of Jackson, cemented 6⅝-inch at 2,445 feet, had chalk from 2,445-46 feet and made a drill stem test resulting in an estimated 15,000,000 feet of dry gas. Gulf Refining Co.'s No. 1 Rainey, in Section 13-5-1e, Rankin County, tested 10,000,000 feet of gas and 20,000 bbls. salt water at 2,520 feet and is mixing mud to fill a cavity at a total depth of 2,649 feet. Jackson Oil & Gas Co.'s No. 1 Mays, Section 2-5-1e, Hinds County, was completed making 2,000,000 feet of gas and considerable salt water at 2,480 feet. These details present a rather intriguing situation.

Arkansas Fuel Oil Co.'s No. 1 Scott, in Section 32-14-13, DeSoto Parish, a half-mile north of Roy's Holly producer which was dry at 2,816 feet and 2,915 feet, made another drill stem test in sandy shale at 2,943-89 feet and got 500 bbls. of salt water. It will drill deeper. Arkansas-Louisiana Pipe Line Co., which has taken over Loring Oil Co.'s 3,500-acre block in the old Spider district of DeSoto Parish southwest of Mansfield, and is deepening No. 1 Johnson, Section 7-11-13, had a blowout at 3,054 feet of about 3,500,000 feet of gas. It caught fire and four of the crew were scorched The well was being deepened from 2,865 feet where it tested about 13,000,000 feet of gas and completed by Loring Oil Co., formerly Benedum & Trees Oil Co.

No. 1. Cook Shut In

Bridges-Clark Oil Co.'s No. 1 Cook, in Section 3-9-12, a mile southeast of production and about half that far from the company's No. 1 Guy, in Section 33-10-12, cemented 6⅝-inch at 3,276 feet, drilled plug and was coming out of the hole when it blew in with an estimated 15,000,000 feet of gas and much salt water from 2,307 feet. The Guy blew out with an estimated 25,000,000 feet of gas with salt water from broken sand and shale at 2,470-2,509 feet, total depth 2,486 feet, and was abandoned as a water hole at 3,300 feet. The Cook well is shut in.

Four miles east of nearest production in the Zwolle district of Sabine the Pelican Natural Gas Co. appears to have a small pumper in No. 1 Louisiana Long Leaf Lumber Co., in the NW SE, Section 4-7-11, which is standing about 200 feet in oil from a total depth of 2,425 feet, while standard rig is being built. It has derrick up for No. 2 Louisiana Long Leaf Lumber Co., in the C NE, Section 20-7-12, about 4 miles south of production. R. L. Gay's No. 7 Bowman-Hicks, in Section 14-7-14, making heads while being standardized, is an extension of the Blue Lake area about two locations west. Total depth is 2,575 feet. Half a mile north of production in the Zwolle area A. H. Tarver & Shreveport-El Dorado Pipe Line Co.'s No. 1 Sabine Lumber Co., in the SE cor. SW, Section 27-8-12, pumped 90 bbls. oil in the first 16 hours at a total depth of 2,680 feet. It is a half-mile east of Haynes Brothers' No. 1 Dover in Section 27, which had 500 feet of oil in the hole from 2,640-70 feet, but was abandoned as a salt water test at 2,800 feet.

More interesting perhaps than either of these developments, however, is the behavior of Olsan Brothers' No. 1 Keelan, in Section 27, half a mile south of Tarver's well. One of the first tests to get under way following Gay's discovery producer, it was temporarily abandoned early in February with 150 feet of oil in the hole, total depth 2,625 feet. Monday it made a head of oil variously estimated at 50 to 80 bbls. and has been hooked up to a fuel tank, the only storage on the location, to see if it will repeat the performance. Davis & Tyson's No. 1 Neville & Roberts, in Section 31-8-12, was completed at 2,187 feet flowing 75 bbls., the shallowest well in the whole Zwolle-Blue Lake district. Bob Elmore's No. 1 Bolin, in the same section, however, was a dry hole and abandoned at 2,602 feet, and Lacy and others' No. 1 Knouse, in Section 36-8-12, was abandoned at 2,563 feet.

W. G. Gray is drilling below 3,200 feet on the first well during the current development around Zwolle to pass 3,000 feet, No. 1 Knowlton, in Section 6-7-12. Loring Oil Co.'s No. 1 Sabine Lumber Co., Section 34-8-12, Zwolle area, was a second completion of the week with much better results than when it was listed April 10 as a 50-bbl. producer at 2,340 feet. When so listed it was flowing at this rate without having drilled plug from 8¼-inch casing cemented at 2,340 feet. After getting the cement out early in the week and making 20 feet more hole it was brought in again flowing 1,490 bbls.

Arkansas Fuel Oil Co. got the first show of anything it has had below the regular Urania pay, aside from a salt water test at 3,364 feet, when it ran testing tool on No. 5-F Urania, Section 24-10-1e, and got 1,200 feet of salt water in four minutes from 12 feet of sand 5,923-35 feet, total depth 6,060 feet.

Recognition of Urbana district of Union County, Arkansas, was made during the week when Urbana appeared in pipe line run figures with a daily average of 700 bbls. Two wells in the district, referred to in this article, made 1,000 bbls. initial in addition to the average 600 bbls. from the discovery well, Marine Oil Co.'s No. 1 Thompson in Section 10-18-13, in which the two wells referred to are located. Standard Pipe Line Co. built 4 miles of 6-inch line into the prospective pool to connect with its 10-inch Kenova-Mississippi River line. Daily average runs from the field were:

North Louisiana

Caddo, light	9,990
Caddo, heavy	2,860
Homer	3,420
Haynesville	4,500
DeSoto-Red River	3,095
Elm Grove	420
Bellevue	640
Cotton Valley	2,120
Urania	5,215
Pleasant Hill	700
Sarepta-Carterville	2,880
Zwolle	5,100
Holly	1,050
Total	41,990
Last week	41,530
Increase	460

Arkansas

El Dorado	3,980
Smackover, light	5,310
Smackover, heavy	40,290
Stephens	960
Nevada County	840
Lisbon	1,010
Champagnolle	4,620
Bradley	80
Mount Holly	135
Urbana	700
Total	57,925
Last week	57,805
Decrease	120
Both states	99,915
Last week	99,335
Increase	580

Every pool in the district showed a decline this week, most of them, however, the few barrels fluctuation that may be expected. The most marked differences were an increase of 950 bbls. in Zwolle runs and a decline of 245 bbls. in Smackover heavy shipments.

Twenty-nine completions in the Shreve-

(Continued on Page 120)

LOUISIANA-ARKANSAS PROVEN AREAS

NORTH LOUISIANA
BOSSIER PARISH—CARTERVILLE

Company, farm and location—	Remarks—
Ark. Fuel Oil Co.'s No. 1-B Barnett, 290 ft. S, 300 ft. E, NW cor. NW NE, Sec. 36-23-12	Drlg. shale 3,140 ft.
Ark. Fuel Oil Co.'s No. 2-B Barnett, 330 ft. N, 330 ft. W, SE cor. NW NE, Sec. 26-23-12	Derrick.
Ark. Fuel Oil Co.'s No. 3 Bollinger, 1,024 ft. S, 375 ft. W, NE cor. Lot 26, Sec. 38-23-12	Reaming to bottom; T.D. 3,247 ft.
Ark. Fuel Oil Co.'s No. 4 Bollinger, 330 ft. N, 330 ft. W, SE cor. Lot 14, Sec. 28-23-11	Two ft. sand tested S.W; arranging to deepen; T.D. 3,254 ft.
Ark. Fuel Oil Co.'s No. 3-A Kilgore, 330 ft. S, 235 ft. E, NW cor. SE SW, Sec. 30-23-11	Cmtd. 10-in. 257 ft; drlg. 2,293 ft.
Ark. Fuel Oil Co.'s No. 4-A Kilgore, 100 ft. N, 1,330 ft. E, SW cor. SE SW, Sec. 30-23-11	Drlg. 2,860 ft.
Ark. Fuel Oil Co.'s No. 4-B Kilgore, 200 ft. N, 300 ft. E, SW cor. NE NW, Sec. 31-23-11	Cmtd. 6⅝-in. 3,168 ft.
Ark. Fuel Oil Co.'s No. 5-B Kilgore, 330 ft. N, 957 ft. E, SW cor. NE NW, Sec. 31-23-11	Drlg. 2,920 ft.
Ark. Fuel Oil Co.'s No. 6-B Kilgore, 330 ft. S, 330 ft. E, NW cor. NE NW, Sec. 31-23-11	Derrick.
Ark. Fuel Oil Co.'s No. 7-B Kilgore, 330 ft. S, 990 ft. E, NW cor. NE NW, Sec. 31-23-11	Derrick.
Ark. Fuel Oil Co.'s No. 8-B Kilgore, 330 ft. N, 1,520 ft. E, SW cor. NE NW, Sec. 31-23-11	Derrick.
Ark. Fuel Oil Co.'s No. 9-B Kilgore, 330 ft. S, 1,650 ft. E, NW cor. NE NW, Sec. 31-23-11	Location.
Ark. Fuel Oil Co.'s (formerly Muslow Oil Co.'s) No. 1 Mark Myer, 1,980 ft. N, 330 ft. W, SE cor., Sec. 36-23-12	Arranging to deepen; T.D. 3,088 ft.
Ark. Fuel Oil Co.'s (formerly Muslow Oil Co.'s) No. No. 2 Peyton, Sec. 30-23-11	Arranging D.S. test 3,148 ft.
Ark. Fuel Oil Co.'s (formerly Muslow Oil Co.'s) No. 3 Peyton, Sec. 30-23-11	T.A. 3,285 ft.
Ark. Fuel Oil Co.'s No. 4 Peyton, 200 ft. N, 150 ft. E, SW cor. NW SW, Sec. 30-23-11	Cmtd. 6⅝-in. 3,131 ft; T.D. 3,161 ft.
Ark. Fuel Oil Co.'s (formerly Muslow Oil Co.'s) No. 1 Floyd, 990 ft. S, 330 ft. W, C, Sec. 25-23-12	Cmtd. 6⅝-in. 3,135 ft; T.D. 3,176 ft.
Ark. Fuel Oil Co.'s No. 1 Ramsey, 557 ft. S, 330 ft. E, C, Sec. 31-23-11	Rig up.

(Continued on Page 98)

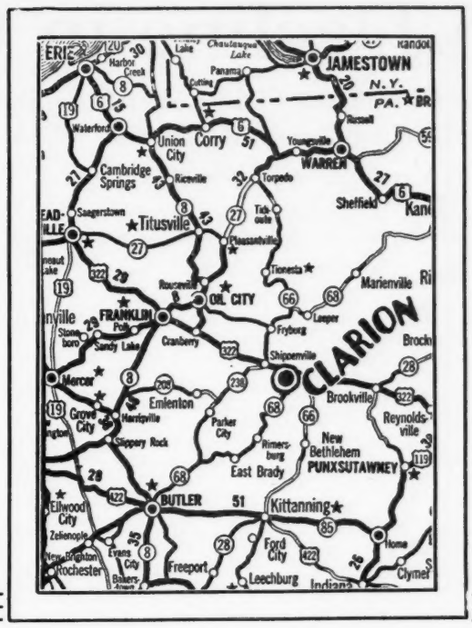
WILDCAT OPERATIONS IN LOUISIANA-ARKANSAS

NORTH LOUISIANA
AVOYLLES PARISH

Company, farm and location—	Remarks—
R. E. Tippett's No. 1 Chateline, NE NE, Sec. 34-1n-3e	Drlg. 1,600 ft.
BIENVILLE PARISH	
W. A. Nichols et al's No. 1 McDermontt, 660 ft. S, 660 ft. W, NE cor. NE NE, Sec. 28-18-6	S.D. 1,400 ft.
BOSSIER PARISH	
Andrews & Davlin's No. 1 Nattin, 100 ft. N, 250 ft. W, C, Sec. 15-22-14	Rig up.
C. H. French's No. 1 Biedenharn, Sec. 23-21-14	Rig up.
La. G. & F. Co.'s No. 1 Crystal Oil Ref. Co., 66 ft. N, 1,320 ft. W, SE cor. SW SE, Sec. 7-21-11	Location.
H. I. Morgan's No. 4 Wetherbee, 125 ft. W, 200 ft. S, NE cor. SW SE, Sec. 21-19-11	Began drlg. Apr. 21; cmtd. 10-in. 112 ft.
Walker et al's No. 1 Antrim, NW cor. SE, Sec. 28-22-13	S.D. 3,184 ft.
CADDO PARISH	
Magnolia Pet. Co.'s No. 1 Swann, 330 ft. N, 380 ft. W, SE cor. NE SW, Sec. 16-21-14	Cmtd. 6⅝-in. 1,535 ft; T.D. 1,580 ft.
L. B. Mawk's No. 1 Swann, 440 ft. N, 200 ft. E, SW cor., Sec. 23-21-14	S.D. for fuel; T.D. 700 ft.
R. W. Norton's No. 1 Hill, 630 ft. N, 1,260 ft. W, SE cor. NE, Sec. 33-23-16	Drlg. 4,570 ft.
I. N. Pharis, trustee's No. 1 Oden, NE cor. SE NE, Sec. 16-19-14	S.D. 2,322 ft; topped sand at 2,396 ft; set 6⅝-in; T.D. 2,409 ft.
C. W. Robinson's No. 1 Wilson, 990 ft. S, 330 ft. W, NE cor. SE, Sec. 2-15-16	Cored shale 2,934 ft.
Triangle Drlg. Co.'s No. 1 Hardy et al, 660 ft. N, 660 ft. W, SE cor. fractional Sec. 18-19-16	Drlg. 2,090 ft.
CATAHOULA PARISH	
National O. & G. Co.'s No. 1 Kirkland, 585 ft. E, 495 ft. N, SW cor., Sec. 35-9-1n	Rig up.
CLAIBORNE PARISH	
El Dorado Chief Oil Co.'s No. 1 Dance, C SW NE, Sec. 27-20-7	S.D. 2,240 ft.
Leue Oil Co.'s No. 1 Taylor, 1,153 ft. S, 360 ft. W, C, Sec. 16-22-6	S.D. 2,864 ft.
CONCORDIA PARISH	
Joe Man et al's No. 1 Maxwell, C, Sec. 35-3n-8e	D.S. test 2,040 ft., dry; drlg. 2,072 ft.
DE SOTO PARISH	
Benson Oil Co.'s No. 1 Harris, Sec. 6-10-13	Tested dry; show gas; W.O. 3,650 ft.

(Continued on Page 95)

CLARION, PENN. AREA



DISCOVERY of oil in this area dates way back to about the year 1810, when Colonel Thomas Watson started operations for salt at the mouth of Deer Creek. He drilled a well here and manufactured some salt, but the supply of water failing he attempted to drill deeper, striking a stream of salt water which was mixed with a mysterious yellow fluid of a strong odor and very inflammable. The salt water was rendered worthless by this new fluid and the enterprise was abandoned.

In 1860, when oil was discovered in large quantities along Oil Creek, this old well of Colonel Watson's was recalled and the well and the tract of land on which it was located was leased by Messrs. Jacob Hahn, Charles Hahn and Jesse Thompson, who cleaned out the hole, installed pumping apparatus and obtained 200 barrels of oil, when the well failed.

Early in May, 1865, the Deer Creek Oil Company discovered oil at a depth of 308 feet on a tract of land half a mile above the mouth of Deer Creek which produced 10 barrels a day, and which was considered as Clarion County's first producing well.

Many pools were subsequently discovered in this area, among them being the well known fields of St. Petersburg; Turkey City; Foxburg; Parkers Landing; Edenburg; Elk City and others. Wells in these fields were drilled in with productions ranging from 3 to 500 barrels per day.

AXELSON MANUFACTURING COMPANY, LTD.

Sucker Rods; Pull Rods; Plunger Working Barrels (Pumps) Stuffing Boxes, etc.

BEAUMONT IRON WORKS COMPANY

Dreadnaught Rotary Equipment. Water-cooled Drawworks; Timken Bearing equipped Straight Line Crown, Traveling and Tubing Blocks; Pumping Hoists; Electrically Driven Bailing line Reels; Structural Steel Walking Beams with patented Internal Truss Brace; Steel Pitmans; Pipe Sampson Posts; Casing Shoes, Clamps, etc.

DONOVAN BOILER WORKS

Oil Country Boilers and Tanks. Boilers range from 30 H. P. 150 lb. W. P. to 125 H. P. 350 lb. W. P. for the deepest and hardest drilling demands.

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Friction Surface Rubber belting made to our own specifications.

JONES & LAUGHLIN STEEL CORPORATION

Tubular goods including Buttwelded, Lapwelded and DOUBLE PIERCED Seamless steel in Line Pipe, Tubing, Drill Pipe and Casing.

NATIONAL TRANSIT PUMP & MACHINE COMPANY

Pumps, Gas Engine Compressors, Pipe Line Equipment, etc.

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Valves for the Petroleum Industry.

J. P. RATIGAN

The "SURE GRIP" line of pumping equipment including Grips, Clamps, Beam Hangers, etc.

JOSEPH REID GAS ENGINE COMPANY

Gas Engines, two and four-cycle; Band Wheel and Direct Drive Pumping Powers, Receiving Boxes and other refinery equipment.

JOHN A. ROEBLING'S SONS COMPANY

Wire Line; Gas and Electric Welding Wire.

ROSSENDALE-RUBOIL COMPANY

"Camel Hair" and stitched canvas belting.

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Valves, Pipe Fittings and Tools for Steam, Water, Gas, Oil and Air.

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Manila Cordage, Drilling Cables, Bull Ropes, Cat Lines, etc. Either Waterflex or Plain. Waterflex is impervious to moisture.

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Pittsburgh, Pa. Tulsa, Okla.

Production Decline in Gulf Coast

Deep Sand Area in Refugio Field Looks Like Shoestring. Wildcats May Have Opened Two New Domes. Week of Small Wells

By Neil Williams
Staff Correspondent, Gulf Coast Fields

HOUSTON, Tex., Apr. 28.—Continued steady declines in the major producing fields of the Gulf Coast were indicated the past week with the result that the daily output again is well under the 200,000-bbl. mark. The daily average for the week ending April 26 was 201,500 bbls., a drop of 11,079 bbls. from the peak of 213,179 bbls. reached during the week of April 5. Had it not been for a series of completions at Spindletop, which added some flush production in that field, the first appreciable amount for several months, and a gain at Raccoon Bend, Coastal production would have shown a decided drop. The greatest decline felt is at Barbers Hill which now is producing only 18,000 bbls. as against a high mark less than four weeks ago of above 30,000 bbls.

Considering completions, the past week was one of the quietest in several months. Although a long string of wells was brought in virtually all were of little importance either from size or location. Late completions of the week included three wells in the 3,700-foot area at Refugio. Morgan Oil Corp.'s No. 6 City came in flowing 1,075 bbls. of pipe line oil on chokes from a sand at a total depth of 3,701 feet. Independent Oil & Gas Co.'s No. 5 Claude Heard was good for 625 bbls. at 3,698 feet, and Larco Co.'s No. 4 Strauch, 300 bbls. at 3,679 feet.

Discouragement in Refugio

Developments at Refugio generally were discouraging. It begins to look as though the deep sand production will be of the shoestring type although this cannot be determined definitely considering the comparatively little drilling which has been done. The chances of deep production to the immediate north of the 3,700-foot field were dimmed when Independent Oil & Gas Co.'s No. 1 O'Brien, Block 14, showed 55 fourbles of salt water in five minutes on a drill stem test of sand at 6,601-07 feet. This well tested salt water in the 3,700-foot, 5,500-foot, 5,800-foot and 6,400-foot sands and was deepened to the present depth. It is the deepest well drilled in the Refugio Field.

Independent Oil & Gas Co.'s deep test in the 3,700-foot field on the west of the town lot area also tested salt water in a drill stem test. This was No. 1 Reilly, Block 3, Lot 10, which was in a sand at 5,061-85 feet. This test has been of interest in view of the fact that virtually all the deep drilling has been around the sides of the 3,700-foot field and few tests have been drilled below 3,700 feet in the latter area.

Union Producing Co.'s No. 2 M. F. Lambert at present is one of the most important tests in the Refugio area. At a total depth of 5,891 feet it is in the sand recently found productive by the same company's No. 1 M. F. Lambert at a total depth of 5,884 feet. The latter is a wildcat producer approximately 2 miles northeast of the main field and the No. 2 Lambert, the second test in that area to reach the 5,800-foot sand, is approximately 1,500 feet further east. No. 1 Lambert so far is the only producer in the 5,800-foot sand. Four other tests now are under way in that area, all having been started since the completion of Union's producer. Independent Oil & Gas Co.'s No. 1 M. F. Lambert, the farthest east, being an east offset to Union's No. 2 Lambert, which has just found the sand, is drilling in water sand at 4,073 feet. Union's No. 3 Lambert in the southwest corner of the tract is drilling sticky shale and lime at 3,042 feet. T. P. Morgan's No. 1 St. Johns, a south offset to the latter, is drilling sand and lime at 2,462 feet, while Houston Oil Co.'s No. 1 Rose Lambert, offsetting the Union M. F. Lambert tract on the west, is drilling below 500 feet.

The Morgan interests have purchased an interesting 60-acre tract on the southeast edge of the present 5,500-foot producing area, and comprising the northeast corner of the O'Connor land. The deal involved a bonus of $500 an acre in cash and $500 in oil. The 60-acre piece will require the immediate drilling of four deep tests as offsets to adjoining producing property.

Two More Dome Fields?

What looks like the finding of two more dome fields, one in Southeast Texas and the other in coastal Louisiana, was indicated in wildcat developments late in the week. Sloan Prospecting Co.'s No. 1 Mrs. J. Ulrich, Hannah Nash Survey, Harris County, on what is known as the Cedar Bayou Dome prospect, has gone into the Oligocene lime, characteristic of the Barbers Hill salt dome, approximately 5 miles to the east, and is showing oil. The "big" lime was topped at 5,909 feet and late Saturday the test was coring at 5,950 feet. While this is somewhat lower than the Barbers Hill, the discovery has made the Cedar Bayou prospect more favorable. At Barbers Hill, approximately 150 feet of shale lies below the big lime before the pay is tapped. Cedar Bayou is one of the coast's late geophysical discoveries. Shell Petroleum Corp. first was given credit for checking it during 1928 and the early part of 1929 but the geophysical findings at that time were not given much credence although a number of larger companies were active in trying to buy acreage. It was not until this year when the Sloan Prospecting Co. went into the area, rechecked it, and drilled this first test that the area was really looked upon as a prospective dome.

Vacuum Oil Co. has been having extremely encouraging results in its No. 1 Cameron Meadows, Section 21-14-13w, southern Cameron Parish, Louisiana. This is a rank wildcat on a new salt dome prospect and has been encountering a series of oil showing sands from 1,275 feet on down. At present it is coring deeper in sticky shale below 3,750 feet after having made a drill stem test there showing oil which tested 26.7 gravity. Although nothing is certain on the Gulf Coast, this test generally is considered as good as a producer and a new important field is expected to be opened in that area.

Good Well in Lockport

Union Sulphur Co.'s No. 1 Moss in the Lockport district of Calcasieu Parish which was completed early in the week flowing an estimated 600 bbls. of 28 gravity pipe line oil from a sand at a total depth of 4,814 feet, looks like a consistent producer. The well is approximately 2,000 feet to the west of production of the field, which has been operated jointly by the Vacuum Oil Co. and Gulf Refining Co. exclusively. The latter operators' Frieberg & Wolf property offsets the Union Sulphur Co.'s wildcat.

Three small wells at Humble, four at Spindletop, two at Blue Ridge, one each at Big Creek, Esperson, Sour Lake and Saratoga, made up the completion list of the week in addition to wells previously mentioned. Among the long string of abandonments were Gulf Refining Co.'s No. 1 City of New Orleans, first test on the new Wisner Dome prospect, La-Fourche Parish, Louisiana, quit at 6,350 feet; Humble Oil & Refining Co.'s No. 1 Cockrell-Moran, Lake Grand Ecaille prospect, Plaquemines Parish, Louisiana, and The Texas Company's No. 1 Iberville, Hager Dome, St. Martin Parish, Louisiana. The Wisner and Hager wildcats were deep, the former going to 6,350 feet and the latter to 6,764 feet.

Daily average production of coastal fields for the week ending April 26 was:

SOUTHEAST TEXAS

Allen	70
Barbers Hill	20,102
Batson	1,193
Big Creek	3,255
Blue Ridge	1,801
Brenham	160
Boling	1,131
Clay Creek	1,145
Damon Mound	505
DeWalt	10,187
Fannett	1,057
Goose Creek	4,590
Hankamer	2,558
High Island	1,848
Hull	8,478
Humble	18,331
Jasper County	25
Lost Lake	643
Markham	317
Nash	315
North Dayton	550
Orange	2,658
Orchard	1,849
Pierce Junction	10,406
Port Neches	1,697
Raccoon Bend	10,191
Refugio	39,776
Esperson (Shecks)	3,147
Saratoga	1,049
Sour Lake	2,345
South Liberty	4,827
Spindletop	17,609
West Columbia	5,928
Total Southeast Texas	179,743
Week ending April 19	181,576
Decrease	1,833

SOUTH LOUISIANA

Anse La Butte	37
Bayou Blue	103
Bayou Bouillon	555
Black Bayou	85
Edgerly	568
Jennings	875
Hackberry	3,969
Lake Barre	1,103
Lake Pelto	163
Lockport	2,837
New Iberia	7
Port Barre	2,103
Sorrento	156
Starks	449
Sulphur	4,300
Sweet Lake	117
Vinton	3,790
Welch	172
White Castle	377
Total South Louisiana	21,757
Week ending April 19	21,573
Increase	184
Total Gulf Coast	201,500
Week ending April 19	203,149
Decrease	1,649

GULF COAST FIELDS AND WILDCATS

Week Ended April 26

BARBERS HILL—CHAMBERS COUNTY

Mills Bennett Production Co.'s No. 2, Barber, north side.. Drill stem stuck 6,582 ft.; T. A.
Mills Bennett Production Co.'s No. 7 Barrow, southwest.. Tested salt water 5,642 ft.; pulling screen.
Mills Bennett Production Co.'s No. 4 Wilburn, southeast.. Drlg. hard sand 5,147 ft.
Mills Bennett Production Co.'s No. 2 Gulf fee, southeast .... Drlg. hard sand lime 4,040 ft.
Mills Bennett Production Co.'s No. 1 Gulf-Fisher, south... Spudded.
Fell & Thornton's No. 1 McLain .... Tested salt water 2,085 ft.; pulling screen.
Gulf Production Co.'s No. 3 Wilburn southeast .... Drlg. lime rock 2,584 ft.
Gulf Production Co.'s No. 4 Wilburn, southeast .... Drlg. gumbo and lime 2,633 ft.
Humhreys Corp.'s No. 1-F Barber, northwest .... Drlg. water sand 6,092 ft.
Humphrey's Corp.'s No. 2-C Kirby (workover) .... Drlg. shale and lime 3,230 ft.
Humphreys Corp.'s No. 1 Morgan .... Drlg. water sand 6,092 ft.
Humphreys Corp.'s No. 2 Scott .... Drlg. shale and lime 4,286 ft.
Humphreys Corp.'s No. 1 C. Barber (workover) .... Drlg. lime 5,076 ft.
Humphreys Corp.'s No. 2-H Kirby (workover) .... Rigging to deepen.
Humphreys Corp.'s No. 3-H Kirby (workover) .... Drlg. shale and lime 5,153 ft.
McAlbert Oil Co.'s No. 5 Woodward, southeast .... Drlg. shale 5,084 ft.
Sinclair Oil & Gas Co.'s No. 3 McKinney fee .... Running tubing 5,265 ft.
Sinclair Oil & Gas Co.'s No. 4 McKinney fee, southeast Derrick.
Sinclair Oil & Gas Co.'s No. 6 Wilburn, southeast .... Total depth 5,060 ft.; cmtd. csg. 5,025 ft.
Sinclair Oil & Gas Co.'s No. 7 Wilburn, southeast .... Drlg. gumbo 2,298 ft.
Sun Oil Co.'s No. 4, McKinney fee .... Total depth 5,165 ft.; cmtd. csg. 5,080 ft.
Sun Oil Co.'s No. 5 Wilburn fee, southeast .... Total depth 5,224 ft.; cmtd. csg. 5,180 ft.
Sun Oil Co.'s No. 6 Wilburn fee, southeast .... Drlg. sand and shale 4,580 ft.
Sun Oil Co.'s No. 5 J. Wilburn, southeast .... Drlg. shale and lime 3,230 ft.
Sun Oil Co.'s No. 6 J. Wilburn, southeast .... Drlg. rock 4,200 ft.
F. L. Thompson's No. 2 Wilburn, southeast .... Tested salt water 4,646 ft.; pulling screen.
F. L. Thompson's No. 3 Wilburn, southeast .... Drlg. sand and lime 4,630 ft.
Unice Oil Co.'s No. 2 Feldman (workover) .... Drlg. hard sand and shale 5,102 ft.
Yount Lee Oil Co.'s No. 14 Chambers, south .... Drlg. hard sand and lime 2,015 ft.
Yount Lee Oil Co.'s No. 3 Phillips, southeast .... Drlg. shale and lime 4,178 ft.
Yount Lee Oil Co.'s No. 7 Woodward, southeast .... Drlg. gumbo and lime 2,400 ft.
Yount Lee Oil Co.'s No. 1 Zadie Fisher, southeast .... Drlg. hard sand 6,563 ft.

RACCOON BEND—AUSTIN COUNTY

Humble & Valley's No. 3 Buchanan .... Derrick.
Humble & Valley's No. 2 Diener .... Drlg. sand, shale and lime 1,668 ft.
Humble & Valley's No. 1-B Hardy (Waller County) .... Drlg. sticky shale 3,150 ft.
Humble & Valley's No. 5-B Grawunder .... Drlg. sticky shale 3,175 ft.
Humble & Valley's No. 7 Payne .... Derrick.
Humble & Valley's No. 8 Payne .... Derrick.
Humble & Valley's No. 4 Sherrill .... Swabbing 3,538 ft.
Humble & Valley's No. 7 Thompson .... Derrick.
Humble & Valley's No. 7 Urban .... Shut down 1,165 ft.
Humble & Valley's No. 8 Thompson (Waller County) .... Cmtd. csg. to test sandy shale 3,280 ft.
Humble & Valley's No. 3 J. W. Wilson .... Drlg. sticky shale 2,090 ft.
Humble & Valley's No. 4 Ollie Wilson .... Cmtd. csg. to test sandy shale 3,120 ft.
Humble & Valley's No. 6 Woodley .... Derrick.
Humble & Valley's No. 7 Woodley .... Derrick.
Humble & Valley's No. 8 Woodley .... Derrick.

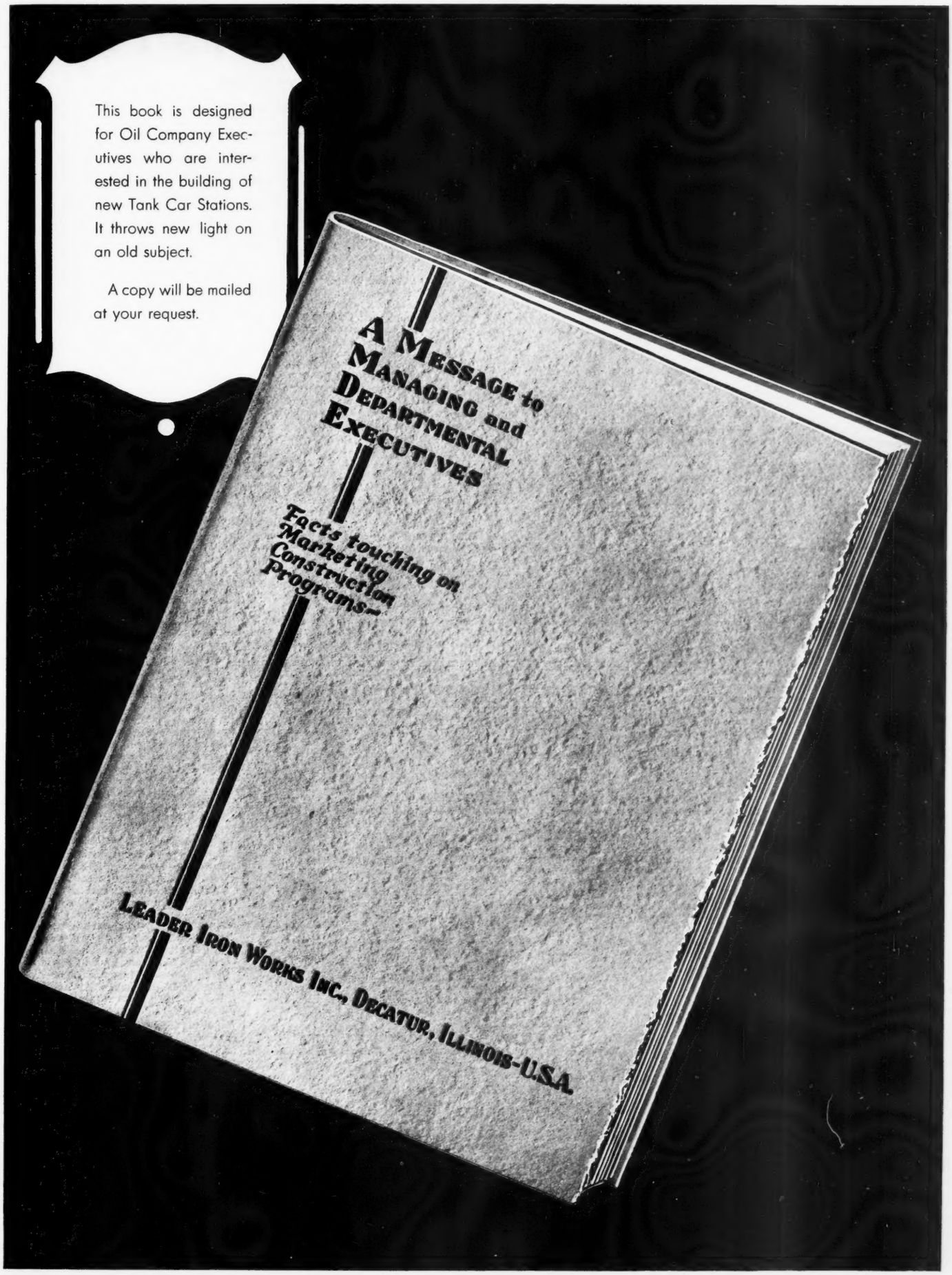
DEWALT—FORT BEND COUNTY

Humble Oil & Refg. Co.'s No. 13 Brazos .... Drlg. sticky shale 2,504 ft.
Humble Oil & Refg. Co.'s No. 14 Brazos .... Tested dry gas 2,846 ft.
Humble Oil & Ref. Co.'s No. 13 Sugarland .... Cmtd. csg. to test 3,530 ft.
Humble Oil & Ref. Co.'s No. 10 Nelson .... Location.

HUMBLE—HARRIS COUNTY

Benedum & Trees No. 1 Foley, south .... Drlg. sticky shale 5,152 ft.
Continental Oil Co.'s No. 1 Koltar, south .... Total depth 5,157 ft.; plugged to 4,100 ft.
Humble Oil & Refining Co.'s No. 11 Williams, south .... Comp. flowing 450 bbls. oil daily 4,836 ft.
Humble Oil & Ref. Co.'s No. 12 Williams .... Drlg. gumbo 2,670 ft.
M. LaRue's No. 1 Cicero .... Drlg. plug to test oil sand 3,480 ft.

(Continued on Page 115)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A copy will be mailed at your request.
A Message to Managing and Departmental Executives
Facts touching on Marketing Construction Programs—
Leader Iron Works Inc., Decatur, Illinois-U.S.A.

Big Gas Well North of Pettus Field

Showed a Little Oil and May Open New Pool. Production Expected to Be on a Narrow Line Northeast-Southwest

By B. D. Stevenson
Staff Correspondent, Southwest Texas Fields

SAN ANTONIO, Tex., Apr. 28.—Morgan Oil Corp. and Benedum & Trees' No. 1 McKinney, a little less than 3 miles north of the discovery oil well of the Pettus Field, came in a big gas well with ample pressure at 3,680 feet. Rock pressure is 1,200 pounds and it is dry gas. When the well was tested before casing was set it was claimed a little oil showed up. But on bringing it in the well made dry gas though there is thought to be a chance the well may drill itself deeper if opened up and yet make some oil. It is too far north to be in the same pool with the Humble Oil & Refining Co.'s No. 1 McKinney which is making oil at 3,850 feet and probably opens a new pool. Production in that part of the country is expected to be in a narrow line extending northeast and southwest. Approximately 3 miles northeast from the Humble's No. 1 McKinney the Humble late last week was down 3,780 feet in No. 1 Lackey & Weldon and coring a sandy shale. The Jackson, which is the marker in that territory, was topped at 2,746 feet. Considerable is expected of this well because it is about in the line that ought to connect up production with the Humble Oil & Refining Co.'s No. 1 McKinney.

The offsets to No. 1 McKinney, three in number, should be reported in within a few days. Other than the offsets and No. 1 Lackey & Weldon the Pettus area is interested in Nichols' No. 3 Hicks, about 6 miles south of the Humble's No. 1 McKinney. It is down a little below 3,000 feet and is thought to be running high. It is not far from Nichols' No. 2 which came in a fairly good gas well at shallow depth. This territory is too far south to connect up production with No. 1 McKinney.

There are three lines of play in the Pettus area. One is northeast and southwest from the Morgan Oil Corp.-Benedum & Trees' No. 1 McKinney, a gas well at 3,680 feet. Another is northeast and southwest from Humble Oil & Refining Co.'s No. 1 McKinney, an oil well at 3,850 feet, and the other is northeast and southwest from Nichols' No. 2 Hicks, a gas well at about 1,900 feet.

Corrected Locations

Morgan Oil Corp.-Benedum & Trees' No. 1 McKinney that came in a gasser last week is not in the R. C. Ballard Survey as first reported but is several thousand feet to the east in the George Habbermacher Survey. It is on the same fee ownership which avoids any complications as to title. The permit was taken out for a location in the Ballard Survey and it was intended to be located there but by mistake was located with reference to the fee ownership instead of with reference to the survey lines. Hence it is actually 450 feet from the south line and 150 feet from the east line of the Habbermacher Survey. It is approximately 6,500 feet a little north of east of the supposed location. Now the speculation is as to what would have happened if it had been drilled where intended. Some acreage was purchased by major companies and others on the supposition that the well was located in the Ballard Survey.

Darst Creek Area

Some dry holes in the Darst Creek area among wildcats and semiwildcats were disappointments registered the past week but the Trinity Drillers' No. 1 McMullen, in the Gibson Petty Survey, 3 miles south of Dale in Caldwell County, and 12 miles northeast of the Bruner Field, got the Austin chalk very low indicating a fault line, and H. S. Morgan's No. 1 Perry, 1½ miles northeast of production in the Bruner Field, has a saturated core in the Buda at 2,565 feet. These features have started a very active play between the Bruner Field and the Dale Field. It is a territory that has been studied before. The Trinity well is thought by some to be in the same trend as the Bruner Field. It is certain the Morgan well is in the same trend and it looks very much like a producer and an important extension.

Late in the week the Fitzsimmons and Perrenot test east of the Darst Creek Field did not look as encouraging as it had and the Magnolia's No. 1 Nixon, 1½ miles southeast of the Darst Creek Field, found the Edwards lime dry at 2,880 feet, though a test between it and the field with the Edwards lime higher got sulphur water.

There are now four offsets to the Magnolia's big No. 1-A Roamel in the west edge of the Darst Creek Field. The Gulf Production Co.'s No. 1-B Dix McKean completed at 2,421 feet flowed at the rate of 2,200 bbls. It is a northeast offset. The Magnolia's No. 2-A Roamel, a southwest offset, came in last week swabbing 55 bbls. an hour, and the North & South's No. 3 Thomas Dix (now the Louisiana Oil Refining Co.'s No. 3 Thomas Dix), a southeast offset, came in flowing at the estimated rate of 1,500 bbls. and the same company's No. 4 Thomas Dix, one location southwest of No. 3, came in flowing at the rate of 2,200 bbls. per day. These all seem to be pretty much crevice wells.

Another feature of the field last week was Magnolia Petroleum Co.'s No. 4 S. M. Roamel in the neighborhood of the company's No. 1 Appling. It is between Magnolia's No. 3 S. M. Roamel and Cranfill & Reynolds' No. 1 Appling. It came in at 2,495 feet pumping at the rate of 300 bbls.

Williamson County Field

E. R. Marts brought the Williamson County's new pool back to importance the past week when his No. 1 Simmons in the new Chapman Pool completed at 1,870 feet came in, went over the crown block and caught fire. There has been no gauge on the well but if offsets C. P. Link's No. 1 Simmons which is a 50-bbl. well. The fire was later put out and the well placed under control. There were three dry holes reported in that field the past week.

Laredo District

Three wells were completed in the Laredo district the past week all making oil. Robert Driscoll estate's No. 11 fee in the Driscoll Pool was reported a few weeks ago as likely to make a well. It is now completed and flowing 700 bbls. of oil of 22 gravity on a three-fourths-inch choke. The sand was found at 2,884-90 feet and it is the best of the four wells in that sand in the field. In sand at 2,457-61 feet it was a gas well, several other gas wells having been completed in the same sand. It was deepened to get the oil. The size of the well makes it important. Humble Oil & Refining Co. got a 10-bbl. well in Duval County in the Kohler Field and Killam-Duggan a 300-bbl. well in Zapata County in the pool northeast of the Jennings gas field.

There are three deep tests in the Laredo district getting close watching. Cole Petroleum Co.'s No. 68 Benavides in the center of the Cole Field in Duval County is whipstocking at 3,666 feet with a little streak of bad luck and it may be a few days before anything interesting can develop on it. O. W. Killam southwest of it in his No. 18 Bruni which discovered one new sand at 2,447-59 feet which on a drill stem test looked like about 60,000,000 feet of gas is now down 3,588 feet and still going. It tested a little oil, gas and salt water at 3,002 feet.

The third deep test is The Texas Company's No. 1-B V. C. de Guerra in Starr County now sidetracking a bit at 3,500 feet. It will be remembered that some months ago the company completed an oil well in that part of the county north of Roma. This is the first test to be drilled since that time.

SOUTHWEST TEXAS

Branyon	20
Bruner	20,141
Buchanan	361
Dale	350
Darst Creek	18,541
Kingsville	128
Larremore	28
Luling	9,578
Lytton Springs	824
Manford	625
McMullen County	35
Medina County	22
Mirando	9,884
Pettus	1,338
Somerset	1,544
Taylor	100
Yoast	540
Total Southwest Texas	64,059
Week ending April 19	66,835
Decrease	2,776

Kendall County

Of the two wells in Kendall County that have been watched since Sterling's No. 1 Werner got some oil at 915 feet, the Seaboard Oil & Gas Co.'s No. 1 Askey, 3 miles north of Sisterdale, at 860 feet is in a formation identified as the Smithwick shale and the Dixson Oil Co.'s No. 1 Ottmar Behr, 4 miles south of Sisterdale at 1,050 feet and in the same formation has a hole full of fresh water. Sterling's No. 1 Werner is 4 miles east of Sisterdale.

Actual pipe line runs from the Darst Creek Field for the month of March was 16,424 bbls. per day. This included considerable production that is not participating in the proration agreement. Penn Oil Co. and Simms Oil Co., from two wells on the Manford lease, ran an average of 750 bbls. per day, Empire Gas & Fuel Co., 470 bbls., and Turman Oil Co., 109 bbls. through the Grayburg pipe line, and the Magnolia Petroleum Co., 3,641 bbls. through the Magnolia Pipe Line Co. line. This makes a total of 4,970 bbls. run daily and not participating in the agreement except that the Magnolia produces from its wells on the same basis as the proration agreement. The proration agreement calls for 10,000 bbls. daily but the field actually produced during March an average daily of 11,454 bbls. Production from the field was as follows by pipe lines:

Pipe lines—	Participating in proration	Not participating	Total runs
Magnolia	....	3,641	3,641
Humble	5,773	....	5,773
Texas	5,681	....	5,681
Simms	....	750	750
Grayburg	....	579	579
Totals	11,454	4,970	16,424

There were a total of 103 wells pro-

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WILDCAT OPERATIONS IN SOUTHWEST TEXAS

ATASCOSA COUNTY

Company, farm and location	Remarks:
Frontier Oil Co.'s No. 1 Gray, 425 ft. from S line, 2,586 ft. from W line of 902-ac. tract in the N. Flores Sur., 3 miles SW from Somerset Field	T. D. 1,500 ft.; drlg. in Navarro shale.

BASTROP COUNTY

Pacific Oil & Gas Co.'s No. 3 J. Spooner (450-ac.), 100 ft. E of No. 1 in the L. Leverance Sur.	Location.
Superior Oil Co.'s No. 1 J. M. Moore, 500 ft. from N line, 500 ft. from E line of 106-ac. tract in the G. T. Glasscock Sur.	T. D. 3,120 ft.; drlg. in Del Rio.
B. L. Batts et al's No. 1 A. A. Alexander, W. M. Eastland Sur., 4,190 ft. to NW line, 1,320 ft. to SW line of Sur.	T. D. 1,360 ft.; drlg. in shale.

BEE COUNTY

Nichols Oil Corp.'s No. 3 Hicks, 500 ft. N-S line, 500 ft. E-W line of Blk. 19, just S of Normanna, 350 ft. SE of No. 2 Hicks discovery	T. D. 2,940 ft.; drlg. in sandy shale.
Morgan Oil Corp.'s No. 1 Mrs. R. A. McKinney, 350 ft. N of S line, 2,640 ft. W of E line of Mrs. R. A. McKinney tract, in the Ryland C. Ballard Sur.	T. D. 3,692 ft.; comp. 20,000,000 ft. dry gas.
Cosden Oil Co.'s No. 1 R. A. McKinney, 150 ft. from S and E lines of McKinney 350-ac. in N part of S John Pace Sur., 1 mile W from Pettus	T. D. 500 ft.; drlg. in gumbo.
Rowan & Tong's No. 1 F. O. Massengale 350-ac., 150 ft. from S line, 3,184 ft. from W line of tract and survey, north John Pace Sur., 1⅛ miles W from Pettus Townsite	T. D. 2,880 ft.; drlg. in shaley gumbo.
Ed Price's No. 1 Mrs. Laura E. Weiss, 200 ft. out of NW cor. of B.&B. 640-ac. Sur., E of Normanna, 6 miles W of Blanco Creek, in the B.&B. Sur.	T. D. 980 ft.; drlg. in sandy shale.
Houston Oil Co.'s No. 1 J. F. Portis 288.3-ac., 1 mile SW of No. 1 McKinney, in the A. Smalley Sur.	T. D. 4,625 ft.; drlg. in shale and gumbo.
Fisher & Wiggins' No. 1 A. J. Kimbell, C 189 acres in the Stephen Winship Sur.	T. D. 3,160 ft.; drlg. sandy gumbo.

BEXAR COUNTY

Burton Oil Co.'s No. 2 Shook, 500 ft. SE of No. 1; No. 1 located 3,150 ft. E line, 150 ft. N line of tract in the M. Monjares Sur., 10 miles SE from San Antonio	T. D. 2,050 ft.; coring Del Rio.
W. H. Wallace et al's No. 1 Minna Corith in the Adams Stafford Sur., 8 miles SE from San Antonio	T. D. 1,600 ft.; dry and abandoned.
Moore-Jauer's No. 1 Holly R. Ellison	T. D. 1,998 ft.; drlg. in lime; light oil show (depth corrected).

CALDWELL COUNTY

W. E. Allaun and Calco Pet. Co.'s No. 1 Martin	T. D. 2,920 ft.; preparing to shoot.
Keen & Malcolm's No. 1 Mollie McNeal, George C. Kimball Sur., 2,500 ft. to W line, 860 ft. to N line, 1 mile S from old Luling Field	T. D. 2,190 ft.; tested mud and salt water; shut down.
Herb. Morgan's No. 1 O. Perry, 2,600 ft. S line, 3,850 ft. W line of survey in the John D. Ranes Sur., 2 miles NE from Bruner Pool	T. D. 2,400 ft.; drlg. in chalk.

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Pennsylvanian Test in Moffat County

Keoughan and Others Starting Important Well. Railroad Completed Into Lea County Will Speed Up Operations

By Tolbert R. Ingram
Staff Correspondent, Rocky Mountain Area

DENVER, Colo., Apr. 29.—Moffat County, in northwestern Colorado, which produces almost 50 per cent of the State's total production of oil and in which is located the State's largest gas fields, is to have its first test of horizons below the formations which are now yielding the oil and gas. Sidney H. Keoughan, former president of the Continental Oil Co., and associates, are about ready to commence spudding in their No. 1 State, NW SW SW, Section 16-4n-101, on the Midland Ridge structure, in western Moffat County, 85 miles west from Craig and 8 miles from the Skull Creek post office. It is about 55 miles due west in an air line from the Iles Dome, 40 miles south and a little west of the Hiawatha gas field, and 15 miles northeast of the Rangely Dome, in Rio Blanco County, where oil is being produced in shallow wells.

The test will prove or disprove the possibilities of the sands in the Pennsylvanian formation and also in the Madison lime. The oil produced so far in Moffat County comes from shale above the Dakota sands, the Dakota, the Morrison and the Sundance sands, all of which lie above the Pennsylvanian, the latter never having been drilled. The gas field in the northern part of the county produces from the Tertiary which is still higher in the geological column. Since the Pennsylvanian has never been tested on the Moffat and Iles Domes, nor on the Thornburg Dome, where considerable gas, but no oil, was developed, the Midland Ridge structure test will have an important bearing on the possibilties of these and other structures in that general region. There are some geologists who have pointed out the possibility, if not probability, that the production found in the upper measures of the proven structures in that area has migrated from the Pennsylvanian or deeper formations. It will be recalled that a recent test on the Mahoney Dome in Carbon County, Wyoming, encountered oil in the Pennsylvanian which had a mixed base and was a much better quality oil than is found in the Tensleep in northern Wyoming. Also, the oil found in the Pennsylvanian at Rattlesnake, N. M., is high grade light oil, and the same is true of the small quantities found in southeastern Utah. It is also recalled that the Madison lime, which has been tested only to a limited extent in Wyoming, has given some favorable results, especially on the Frannie Dome in Park County, where the discovery well produced more than 2,400 bbls. the first 24 hours.

The Midland Ridge Dome which has been selected for the Pennsylvanian and Madison lime test, is one of the largest and well-defined structures in Colorado, being 3½ miles wide and 8 miles long with an east-west axis and approximately 700 feet of closure. The section shows massive sandstones with carboniferous shale between and beneath them. These shales develop an oil content of 8 gallons to the ton by retort. Beneath this lies the Madison lime. The structure is eroded down to the Webber, or Tensleep sandstone and this latter sand, which covers the structure, shows evidence of being heavily saturated before erosion took place.

Associated with Mr. Keoughan in this venture is W. A. Myers, who pioneered the Hiawatha gas field in Wyoming; the Saltmount Oil Co., headed by John T. Barnett, of Denver; and a number of New York and Eastern operators. The Saltmount Oil Co. is jointly controlled by the Salt Creek Producers Association and the Mountain Producers Corp. Mr. Myers acquired approximately 20,000 acres in a solid block, including permits and deeded land as well as a State school section. The deeded land and the school section are well on top of the structure and the permits have been extended for a two-year period with the proviso that no drilling be done before January, 1931, unless consent is given by the Department of the Interior.

The geology is the work of John B. Crapo, of Vernal, Utah, who is familiar with the area. It was checked and passed upon by Dean E. Winchester, of Denver. The California Co., under the direction of Fred Davies, also had its geologists at work in this region.

One completion and two new locations in Larimer County, Colorado, were announced this week. Stanley Barrows and others' No. 1 Barrows, NW cor. SE, Section 7-11n-68, on the Round Butte structure near the Wyoming line, was abandoned at a total depth of 2,375 feet. It topped the Sundance at 2,216 feet and had a good show of oil, but after drilling 8 feet into the sand, water made its appearance. It then drilled on through the sand and into the Lykins (Permian) formation. The showing in the top of the Sundance, it is believed, was sufficient to have made a small commercial well had it stopped before encountering the water. The Barrows well was an important test and is to be followed by additional drilling. The Muddy sand was cut at 1,647-1,723 feet and made 600 bbls. of water per day with a show of oil. The Dakota sand at 1,830-65 feet made only 100 bbls. of water and a better show of oil. At 1,840-47 feet the hole cut a bed of liquid asphalt. The Lakota sand at 1,895-1,908 feet had a show of oil, but no water. The first Morrison at 1,965-85 feet also was free of water and made about half a bailer of oil. The second Morrison, topped at 2,045 feet, showed a little brownish oil and lighter than that found above. The Erbe Oil Co. has made a location 3½ miles to the southwest of the Barrows well for its No. 1 Monroe, C NW NE, Section 26-11n-69, and will drill to around 1,700 feet to explore the possibilities for oil in the Pierre, Nio-Benton and Benton shales. The location was made on the geology of Joseph S. Irwin and Ross L. Heaton. The company is headed by William Erbe of Denver, who is drilling an important test in Nebraska which has had some good shows of gas but at present is bottomed in a water sand. It is probable that a location for another sand test on the Round Butte Dome will be made shortly. This structure lies due north of the Wellington Field.

Another location announced this week for Larimer County is E. S. Agnew and others' No. 1 Maxwell, NE, Section 25-8n-70, on what has been named the Bellvue fold, west of the Fort Collins Dome. The formations rise rapidly towards the west from the Fort Collins structure and the drilling will not be very deep. The contract for the test has been let to Stolns & Son of Boulder and material is being moved to location. The well will be financed by Dr. M. L. Babcock and Lord H. E. Donahue of Salina, Kans. Doctor Agnew states that the Bellvue fold has three times the area of the Wellington Field.

Four miles to the northeast of No. 1 Maxwell, on the SE cor. NE, Section 5-8-69, the West Side Development Co. drilled a well several years ago to a depth of 4,485 feet and stopped supposedly in the Pennsylvanian. It topped the Muddy sand of the Dakota series at 2,024 feet. At one time it had a considerable show of oil in the hole. The No. 1 Maxwell location is 6 miles west and a little north of the Poudre River Oil Co.'s No. 1 Warren, NE cor., Section 33-8n-69, which cut the Frontier at 1,390-1,410 feet and has been bottomed at 3,599 feet, where it is tied up with a fishing job, for some time. On the Wellington Dome, the Continental Oil Co.'s No. 5 Scott, NE NW, Section 6-9n-68, is drilling at 4,110 feet. On the Berthoud Dome, the Standard Oil Co. of Colorado's No. 1 Hertha, NW cor., Section 21-4n-69, cemented the 8¼-inch at 2,825 feet, but when the tools were run to drill out the plug, the gas broke through and blew the tools up the hole. The cable snapped and a fishing job is on hand. It is reported that this company's financing has been about completed. A suit was filed the past week to quiet title in the holdings around which there is said to have been considerable misunderstanding. The Warner-Mosher Drilling Co.'s No. 1 Reed, SW NW, Section 28-4n-69, is bottomed at 3,100 feet and cleaning out after recovering tools which has delayed operations for several months.

Jackson County

Operations in Jackson County, which were at a standstill during the winter, are being resumed. The Producers & Refiners Corp.'s No. 1 Hendershot, SE NE, Section 2-6n-81, Pole Mountain area, is bottomed at 3,610 feet in the Carlisle sand, which proved to be thin, and is pulling the 8¼-inch to straightream. This formation is a definite marker and indicates that the first objective Dakota sands will be encountered under 4,400 feet. The Midwest Refining Co.'s crew has returned to the camp to resume on its No. 21-X Rich, SW NW, Section 9-6n-80, Buffalo Creek Dome. It shut down for the winter at 3,381 feet after cementing the 8⅝-inch on bottom. The Continental Oil Co.'s No. 1 Hoye, SW NE, Section 34-9n-78, South McCallum Dome, the discovery well on that dome which was drilled into the Muddy sand at 4,875 feet two years ago and proved to be a freak well like those drilled on the North McCallum Dome, has been having some work done on it. The well makes carbon dioxide gas at an extremely low temperature and some oil comes out in a frozen state with the gas. It has a habit of blowing out its fastenings and going wild only to choke up with the frozen product. Last fall it stripped the threads on the control head and blew away all the fittings. A separator which had been moved down from the north dome to experiment with the oil production also was blown to atoms. Workmen have succeeded in installing a new control head. The hole made one of its customary blowouts, bridged and was dead at the time.

Weld County

The Platte Valley Petroleum Co.'s No. 1 Patterson, SW SW, Section 24-6n-61, Greasewood Dome, is drilling at 5,535 feet and carrying the 4¾-inch casing. It is in white lime and there is some uncertainty as to the formation's identity. It had been in shale believed to be the

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TURNER VALLEY FIELD PRODUCING AROUND 100,000 BARRELS A MONTH

By Victor Lauriston
Staff Correspondent, Canadian Fields

CHATHAM, Ontario, Apr. 26.—A recent survey of operations in the Turner Valley fields shows that since 1913, when the Dingman discovery well opened the field, a total of 108 wells have been started, exclusive of 46 locations. Some 39 are producing crude naphtha, light crude oil or both with an aggregate of around 100,000 bbls. a month. In the 17 years of development only 14 wells have been abandoned, 8 owing to drilling difficulties, and 6 owing to geological conditions. The latter tests include Big Chief Oil Co.'s No. 1, British Dominion's No. 1, Highland Oil Co.'s No. 1 and Cooper-Nanton Oils' No. 1, all drilled off structure in the central field; and Stockmen Oils' No. 2 and Foothills Oil & Gas Co.'s No. 1 in the north end, which encountered faulted conditions. Since the survey was completed Dome Oils' No. 1, in the north, has been abandoned.

Drilling operations are proceeding on 55 wells of which 22 are in the limestone, a record number. The deepest test yet drilled was British Dominion's No. 1, which went 6,600 feet without reaching the lime, and the deepest tests in progress are Mayland's No. 1, testing production at 6,242 feet, and Royalite's No. 16, drilling below 6,224 feet. The latter has reached a record depth in the lime of over 1,500 feet.

The fluctuating and uncertain geological conditions in the field are indicated by the fact that British Dominion's No. 1 reached a record depth at 6,600 feet without getting the lime; Model Oils' No. 1, in the north, got the lime at the deepest point, 5,800 feet; and Royalite's No. 14, in the central field, got it at the shallowest point, a point below 3,200 feet.

Results From Shot Wells

Until recently, it was believed that any well which actually got the Madison limestone was sure of production at varying depths in that horizon. Recent developments in the south end have shaken this belief, but the situation has been made more encouraging by the shooting of several deep wells by Imperial Oil, Ltd.

Mayland Oil Co.'s No. 1, LSD 10, Section 17-19-2w5, shot 801 feet in the lime at 6,242 feet, is cleaning out for a production test. The shot brought a good gas flow, accompanied by debris, which caused bridging. It seems likely to be a fair producer. In the south end of the central field, Royalite Oil Co.'s No. 23, NW Section 31-19-2w5, measured 7,500,000 feet of wet gas after a shot, and will be a small producer. In the far south, Sterling Pacific Oil Co.'s No. 1, LSD 15, Section 33-18-2w5, showed crude naphtha recovery of 60 bbls. after the shot, but recently developed a decidedly larger wet gas production, recovered 48 bbls. in eight hours, and reported making better than 100 bbls. a day. Gradually clearing itself, it may prove a good producer. In Section 20-19-2w5, Baltic Oils' No. 1, on production after a shot, is unofficially reported making around 50 bbls.

Home Oil Co. from its four producing

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Crude Situation Disturbs California

Committee Thinks Some Operators Are Not Co-operating to Fullest Extent. Three More Attack Gas Conservation Law in Court

By L. P. Stockman
Staff Correspondent, California Fields

LOS ANGELES, Calif., Apr. 26.—Although marketing conditions on the Pacific Coast were stabilized to a certain extent during the past week, the crude oil production situation is still causing operators considerable anxiety. At a meeting of the General Curtailment Committee held a few days ago reports showed a number of fields producing in excess of the allowable quota specified by the curtailment program. The committee did not make any definite recommendation but several of the members stated that they were far from satisfied with the results obtained due to the failure of independent operators to curtail and intimated that drastic action might be anticipated in the near future unless curtailment work became more effective. Reports to the curtailment committee indicated that Santa Fe Springs, Elwood, Long Beach, Seal Beach and several other fields were producing above the maximum agreed upon some time ago. This allowable, it might be mentioned, is not an arbitrary assessment but is predicated on the total potential of each field. At the conclusion of the meeting chairmen of the various fields were instructed to make a further concerted attempt to bring the production of their respective fields down to the established allowable.

During the course of the discussion at the general committee meeting several operators questioned the advisability of further reducing state production. In order to compile the required data upon which to predicate the future policy and determine how much lower state production must be reduced in order to accomplish the desired results, the chairman was instructed to appoint a committee to begin functioning Monday, April 28. In accordance with this motion, Paul N. Boggs, chairman of the Statewide General Committee on Conservation, appointed Hooper C. Dunbar of the Bellview Oil Co., C. R. McCollom of the Pacific Western Oil Co., S. B. Mosher of the Signal Oil & Gas Co., L. M. Lockhart of the Rio Grande Oil Co., A. T. Jergins of the Jergins Syndicate, R. E. Haylett, of the Union Oil Co., T. E. Swigart, of the Shell Oil Co., W. E. Dunlap of the Richfield Oil Co., E. W. Wagy of the Standard Oil Co., A. S. Hayes of the General Petroleum, and Ralph Lloyd, a leaseholder and owner of the Lloyd lease at Ventura Avenue. In addition to these members, the committee was instructed to engage an economist if advisable for the purpose of making a complete economic study of the local situation.

TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Commodity—	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Crude oil	.....	.....	.....	.....	77,405	328,410
Fuel Oil	.....	.....	.....	.....	71,950	49,950
Diesel and gas oil	143,916	20,559	.....	.....	1,377,098	890,124
Gasoline	382,687	54,700	163,303	23,329	5,156,250	5,954,817
Naphtha distillate	.....	.....	.....	.....	.....	81,750
Coastwise—						
Crude oil	511,811	73,116	261,090	37,299	4,849,932	8,141,129
Fuel oil	189,772	27,110	506,359	72,337	5,403,029	6,496,143
Diesel and gas oil	48,376	6,911	18,557	2,651	628,706	458,492
Gasoline	63,806	9,115	291,509	41,644	3,324,508	3,355,000
Kerosene	495	71	14,019	2,003	33,228	8,187
Exports—						
Crude oil	140,560	20,080	87,785	12,541	2,088,533	1,529,373
Fuel oil	338,992	48,427	554,906	79,272	5,367,640	5,431,764
Diesel and gas oil	127,196	18,171	112,546	16,078	1,651,926	689,454
Gasoline	324,903	46,415	564,842	80,692	4,977,244	2,863,430
Kerosene	254,697	36,385	145,124	20,732	1,305,865	795,776
Lubricants	5,025	717	.....	.....	10,082	.....

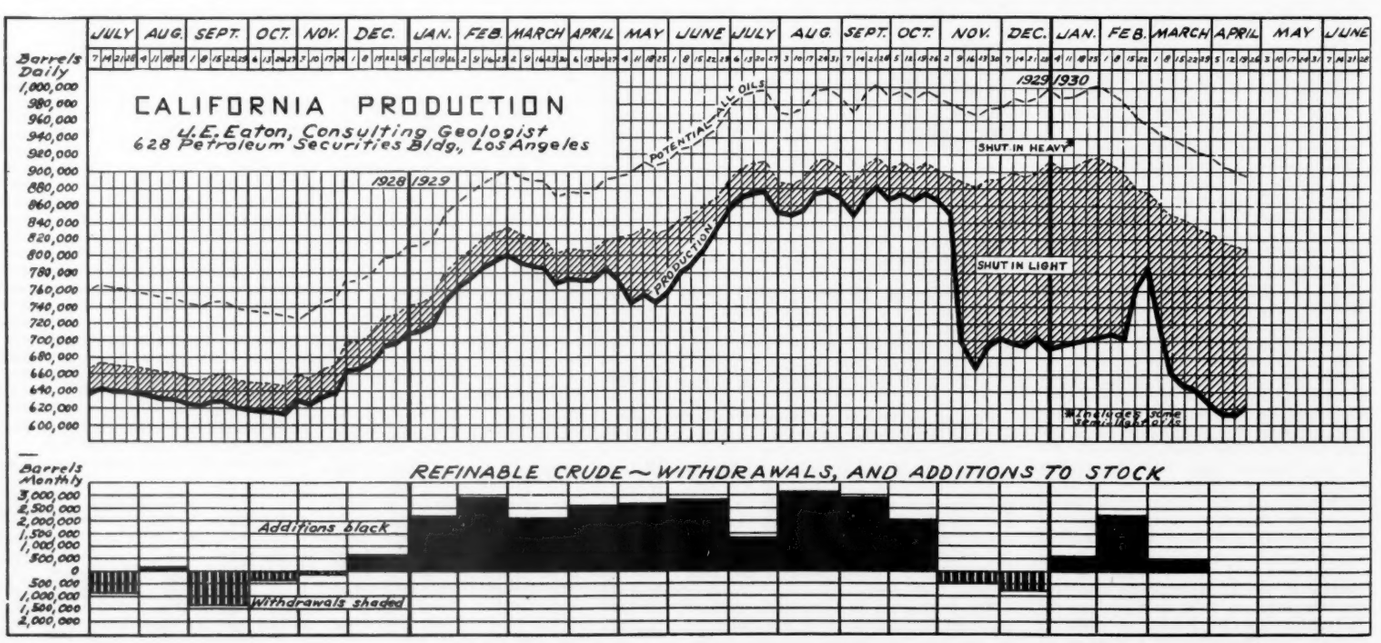
TANKER SHIPMENTS FROM SAN FRANCISCO TO ATLANTIC AND GULF COAST PORTS

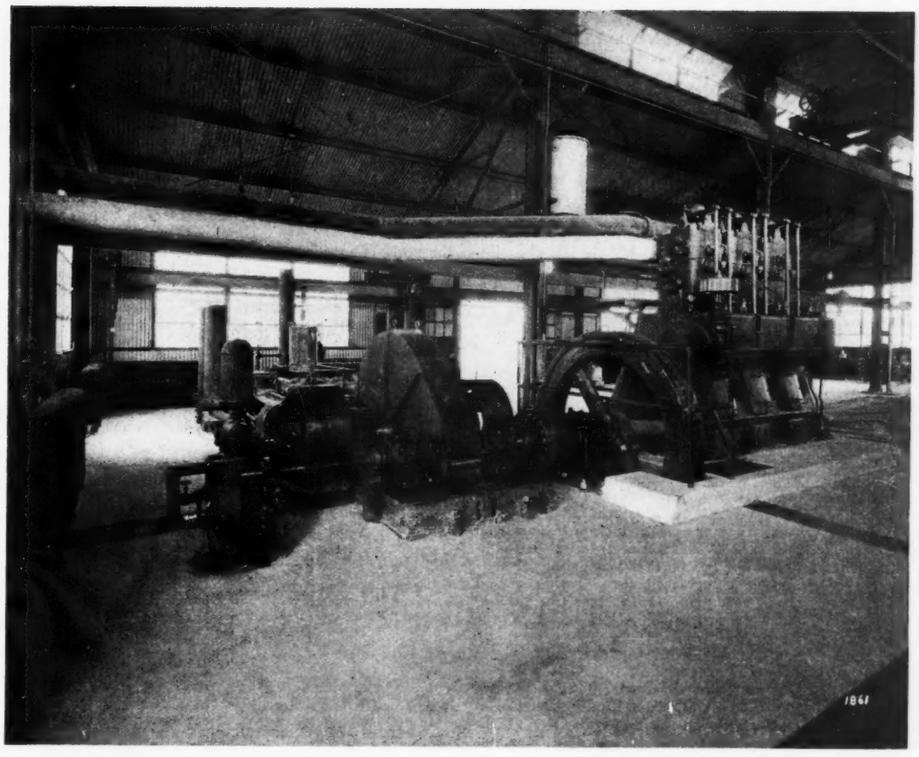
Diesel and gas oil	.....	.....	.....	.....	88,280	.....
Gasoline	.....	.....	83,170	11,881	440,188	848,607
Lubricants	.....	.....	.....	.....	2,946	.....
Coastwise—						
Fuel oil	95,521	13,646	210,400	30,057	1,198,260	848,534
Diesel and gas oil	4,454	636	8,750	1,250	104,327	234,220
Gasoline	71,957	10,280	54,482	7,783	1,273,846	1,090,386
Kerosene	3,752	536	6,267	895	106,349	37,135
Exports—						
Crude oil	.....	.....	.....	.....	3,075	121,603
Fuel oil	.....	.....	.....	.....	347,444	241,671
Diesel and gas oil	.....	.....	.....	.....	124,540	124,838
Gasoline	105,606	15,087	82,039	11,720	1,200,852	1,859,718
Kerosene	.....	.....	.....	.....	162,499	199,428
Lubricants	.....	.....	.....	.....	.....	17,688

Gas Conservation Law

Three more operators initiated action this week to prevent enforcement of the gas conservation law at Santa Fe Springs by filing an application in the state supreme court for a writ of supersedeas which would direct Superior Judge Hazlett to stay execution of that court's temporary restraining order of March 19 and amendatory restraining order of March 28 pending an appeal. Arguments similar to those advanced in the petition to the district court of appeals by the Ambassador, Bandini, Commodore, Wilshire and Wilshire Annex Oil Cos., are advanced in the new petition filed by the Twin Bell Oil Syndicate and Star Petroleum in the state supreme court. The petitioners allege that greater gas pressure is necessary in the area in which wells of these companies are located in order to produce a given quantity of oil. In addition to this, the petition points out that limitation of oil production would be followed by a much higher or greater proportion of gas to a given amount of oil. The companies also alleged that they are faced with the danger of their properties being drained by other concerns and contend that it has not and will not be possible to produce oil profitably or commercially from their respective wells without utilization of natural gas and that the use of natural gas to lift the oil to the surface is the most valuable and beneficial use which can be made of the gas. It is also averred that if the temporary restraining orders of the superior court are enforced the companies involved will suffer irreparable injury and their property illegally taken pending the determination of the appeal. Preceding this action, the Ambassador, Bandini, Commodore, Wilshire and Wilshire Annex Oil Cos. had carried their fight to the appellate court and were granted a writ of prohibition preventing enforcement work pending final action. Arguments on the appeal taken to the appellate court will be resumed early in May.

The gasoline war, which has been raging on the Pacific Coast for more than a month, was brought to a sudden close during the early part of the past week when major refiners unexpectedly announced a substantial increase in tank wagon prices, thereby forcing resellers to increase retail quotations. The refiners did not actually change the tank wagon price but the change in price structure accomplished the same results. Previous to initiation of the gas war, the generally accepted tank wagon price in Los Angeles territory was 15½ cents per gallon. Resellers at that time maintained a retail price of 19½ cents a gallon, which allowed them a 4-cent differential above the tank wagon price. During the period of competitive selling, gasoline was retailed quite extensively at 14½ cents per gallon, indicating rebating on the part of refiners inasmuch as this retail quotation was below prevailing tank wagon prices. In order to correct this situation, refiners established a wholesale price of 21½ cents per gallon and allowed resellers a differential from this figure of 6 cents per gallon. This brought the new price to resellers down to 15½ cents per gallon, or exactly the same figure as the tank wagon price prevailing previous to initiation of the gas war. Just why this practice was instituted remains to be seen. The establishment of new wholesale prices





3 CYLINDER, 200 H.P. SOLID INJECTION PIPE LINE INSTALLATION

The First of Seventeen De La Vergne Diesels

The above photograph shows the first De La Vergne engine of its type and size purchased by one of the large pipe line companies. The engine was installed in 1925. Its successful operation led to the total purchase, by this one customer, of seventeen identical units in a period of four years. This satisfied customer now owns and operates 63 De La Vergne engines, totaling 10,000 horsepower.

The undisputed merit of De La Vergne Diesels is emphasized in the many unsolicited repeat orders from those who have given them a trial.

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has stabilized marketing conditions to some extent but independent refiners are still underselling the majors from 1 to 5 and 6 cents per gallon.

The Standard Oil Co. inaugurated a new policy this week by quoting a price of 6½ cents per gallon for U. S. Motor gasoline in cargo lots delivered to the ship's rail at Los Angeles harbor. President Kingsbury's statement says that "the Standard Oil Co. of California announces the establishment of the posted price at which it offers to purchase gasoline in cargo lots at Los Angeles harbor. Posting a price for the purchase of gasoline is a new policy and an innovation in the oil industry. For many years the Standard Oil Co. has posted a price it offers for crude oil at the well in the various oil fields but the wholesale gasoline market has never in California nor elsewhere had the benefit of a published purchase price. In the past, distress gasoline has from time to time been sold at prices actually below the cost of replacement. It is believed that the existence of such a price will be of considerable importance in establishing essential values and in maintaining an orderly market condition."

Kettleman Hills

The Standard Oil Co.'s No. 38 in the north dome at Kettleman Hills, which was completed a week or so ago, is flowing 2,460 bbls. of clean 60.1 gravity oil and 52,000,000 feet of natural gas per day from 7,392 feet at the present time. This well, located in Section 35-21-17, is an offset to No. 1 Felix of the Petroleum Securities finished some time ago. The Standard has held No. 38 back in the hope that the Petroleum Securities might be persuaded to shut in its No. 1 Felix but when this plan failed orders were issued to place it on production in order to protect its acreage from drainage. This action has brought Dr. George Otis Smith, chief of the United State Geological Survey, rushing to California in order to find out what it's all about. The Standard could not follow any other method except to open up No. 38 when the Petroleum Securities refused to shut in its No. 1 Felix which, incidentally, is located on private acreage situated outside the area covered in the Kettleman Hills curtailment agreement which contemplates suspension of work until July 1, 1931. This might result in a slight change in the present curtailment agreement inasmuch as the Standard's new well is located on acreage adjoining holdings of the Continental Oil Co. It seems logical to assume that the Continental should also be permitted to complete a well on its acreage which is being drained by both the Petroleum Securities and Standard. Local officials of the Continental assert that they have not requested Doctor Smith to study the situation as a result of the completion of these two wells but it is expected that he will confer with the company to dedetermine the proper course to follow.

The Honolulu Consolidated Oil Co. is reported to have signed an option to purchase the Kettleman Oil Corp.'s holdings aggregating in excess of 1,500 acres in the north dome at Kettleman Hills, and, while this has not been verified up to the present, the visit of Sir Henri Deterding to Kettleman Hills last week appears significant. A large portion of the acreage is considered proven oil land and conservatively valued at more than $100,000 an acre. The acreage covered by this projected deal is under contract to the Pacific Western Oil Co. for drilling on a fifty-fifty basis and the transfer of ownership if carried out would give the Honolulu Consolidated one-half of any production secured. The Shell Oil Corp. fits into the picture indirectly through a working agreement with the Honolulu Consolidated. It is significant to note that the Honolulu and Shell interests have been working very closely during the past year to the extent that the Shell is purchasing the former's production in the Midway-Sunset Field of Kern County and consummated a joint deal with the Elby Oil & Land Co. when the holdings of this concern in the Round Mountain Field of Kern County were acquired by the Shell and Honolulu.

Operators in the Kettleman Hills Field recently effected a reduction in production of natural gas by pinching back several wells and in doing so reduced the surplus production of gas from this field 19,000,000 feet daily. In addition to reducing this production of natural gas, operators have prevailed upon the Pacific Gas & Electric Co. to suspend taking gas production from the Buttonwillow gas field and pick up an equivalent amount of gas now going to waste at Kettleman Hills. The Pacific Gas & Electric started taking natural gas from the Milham Exploration Co. at Buttonwillow several months ago at the rate of 20,000,000 feet daily. This has been temporarily discontinued and the Milham will begin delivering a comparable amount from Kettleman Hills.

In addition to reducing surplus production of natural gas at Kettleman Hills, operators are formulating plans which contemplate the utilization of natural gas from Kettleman Hills for repressuring operations in the Coalinga Field, located approximately 10 miles away. Nothing definite has yet been worked out, although the Standard and Shell have been studying the situation very closely. The only difficulty which might be experienced is that many of

(Continued on Page 120)

LARGEST SHOW OF OIL IN TRAVERSE YET FOUND IN MT. PLEASANT FIELD

By Special Correspondent

MUSKEGON, Mich., Apr. 28. — The largest show of oil struck in the Traverse formation in any well in the history of the Mount Pleasant Field was encountered last week in the Pure Oil Co.'s No. 1 E. Elmer Deputy, NW NE SE, Section 13-14n-3w, Chippewa Township, Isabella County. The well made 96 bbls. in the first 19 hours. Very little Traverse production has been found anywhere in the field and all of the wells have been drilled to the Dundee formation or deeper before completion.

The Pure company's No. 1 Jennie Casner, NE SE SE, Section 11-14n-3w, also Chippewa Township, Isabella County, has 50 feet of oil in the hole after a 130-quart shot in the Dundee. Dundee limestone was topped at 3,543 feet and a show of oil was struck at 3,571 feet; bottom of hole 3,600 feet.

Clare County

James A. McKay and J. A. Mercier's No. 2 McKay well, NE NW NW, Section 6-17n-4w, Grant Township, Clare County, is being plugged at 4,055 feet. A small amount of gas was struck in the Marshall formation at 1,445 feet but it drilled into water and was carried on through the Dundee.

Gratiot County

Operators in Central Michigan were disappointed when S. B. Ridenour and F. L. Snyder's No. 1 Nelson well, NE NW, Section 25-12n-4w, Seville Township, Gratiot County, struck water in the Dundee at 3,334 feet. It was drilled to a total depth of 3,339 feet and will be abandoned. It had a small show of oil before drilling into water.

Muskegon Field

A well that was started more than a year ago in what was then the most productive area in the Laketon Township half of the Muskegon Field is be-

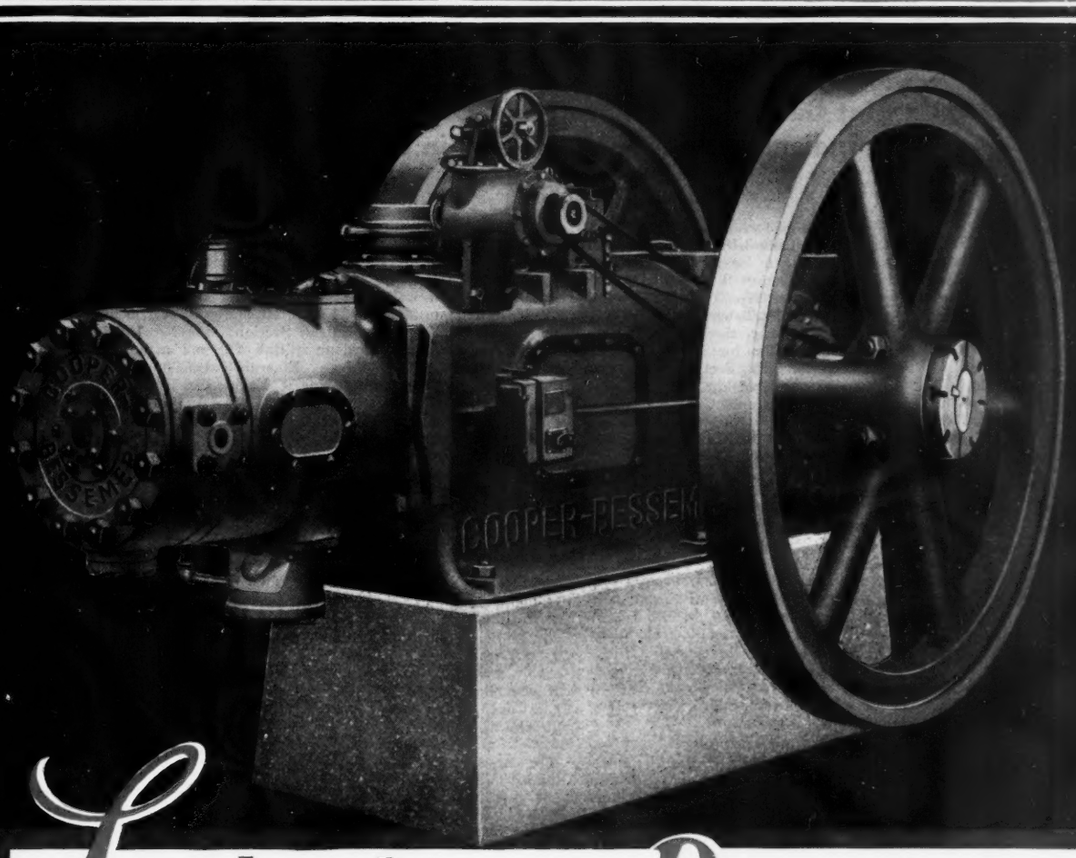
(Continued on Page 130)

IMPORTANT NORTHERN CALIFORNIA WILDCATS

Company, well, location—	S-T-R	Depth	Status
Union, No. 1 Buel Canyon, Santa Barbara Co.	X- 7-31	4,550	hd. sd. drilling
Tannehill, L. B., No. 1 Los Olivas, Santa Barbara Co.	23- 7-31	4,395	suspended
Standard, No. 1 Point Conception, Santa Barbara Co.	X- 5-34	4,380	suspended
Universal Consd., No. 1 Pt. Conception, Santa Barbara Co.	30- 5-34	1,794	sd. sh. drilling
Ohio Oil Co., No. 1 Lompoc, Santa Barbara Co.	2- 6-34	4,396	sd. sh. drilling
Prairie Oil Co., No. 1 Lompoc, Santa Barbara Co.	15- 7-35	2,046	hd. sd. drilling
Fields Gasoline Co., No. 1 Santa Maria, Santa Barbara Co.	8- 9-33	2,017	bl. sh. drilling
Barnsdall, No. 1 Gato Ridge, Santa Barbara Co.	9- 8-32	116	sd. drilling
Duell Pet. Co., No. 1 Santa Ynez, Santa Barbara Co.	9- 7-30	rig	suspended
Carey, A., No. 1 Goleta, Santa Barbara Co.	1- 4-28	2,880	suspended
General Pet., No. 1 Goleta, Santa Barbara Co.	21- 4-28	4,533	shut in
General Pet., No. 2 Goleta, Santa Barbara Co.	21- 4-28	4,350	cleaning out
General Pet., No. 136 Goleta, Santa Barbara Co.	21- 4-28	1,016	suspended
General Pet., No. 137 Goleta, Santa Barbara Co.	21- 4-28	1,026	suspended
General Pet., No. 138 Goleta, Santa Barbara Co.	21- 4-28	3,480	sd. sh. drilling
General Pet., No. 139 Goleta, Santa Barbara Co.	21- 4-28	1,035	suspended
General Pet., No. 143 Goleta, Santa Barbara Co.	21- 4-28	1,040	suspended
Boles Oil Co., No. 140 Goleta, Santa Barbara Co.	22- 4-28	50	suspended
U. S. Pet., No. 141 Goleta, Santa Barbara Co.	20- 4-28	1,035	suspended
U. S. Pet., No. 142 Goleta, Santa Barbara Co.	20- 4-28	1,032	suspended
U. S. Pet., No. 143 Goleta, Santa Barbara Co.	20- 4-28	1,019	suspended
Macmillan Pet., No. 134 Goleta, Santa Barbara Co.	21- 4-28	175	suspended
Bolsa Chica, No. 191 Goleta, Santa Barbara Co.	24- 4-29	mtl.	building rig
Caldwell Brown, No. 159 Goleta, Santa Barbara Co.	24- 4-29	25	suspended
El Camino Oil Co., No. 149 Goleta Tideland, Santa Barb.	22- 4-28	40	suspended
Frazer & Oliver, No. 173 Capitan, Santa Barbara Co.	4- 4-30	101	suspended
Indian Pet., No. 174 Capitan, Santa Barbara Co.	4- 4-30	230	suspended
McLaine, W. L., No. 175 Capitan, Santa Barbara Co.	4- 4-30	30	suspended
Durkee, R. S., No. 176 Capitan, Santa Barbara Co.	4- 4-30	30	suspended
Cunningham, W., No. 177 Capitan, Santa Barbara Co.	4- 4-30	30	suspended
Oakburn Oil Co., No. 168 Capitan, Santa Barbara Co.	4- 4-30	370	suspended
Oakburn Oil Co., No. 169 Capitan, Santa Barbara Co.	4- 4-30	200	suspended
Oakburn Oil Co., No. 170 Capitan, Santa Barbara Co.	4- 4-30	1,302	shut in
Oakburn Oil Co., No. 171 Capitan, Santa Barbara Co.	4- 4-30	300	suspended
Oakburn Oil Co., No. 172 Capitan, Santa Barbara Co.	4- 4-30	325	suspended
Wildcat Oil Co., No. 1 Santa Maria, Santa Barbara Co.	20-10-35	4,487	sd. sh. drilling
Pacific Western, No. 1 Gibraltar, Santa Barbara Co.	14- 5-27	2,345	suspended
Shell, No. 1 Summerland, Santa Barbara Co.	18- 4-25	2,900	br. sh. drilling
Standard, No. 1 Casitas, Santa Barbara Co.	26- 4-25	2,065	hd. sd. drilling
Continental, Tideland permit No. 121, Santa Barbara Co.	33- 4-25	55	suspended
Continental, Tideland permit No. 122, Santa Barbara Co.	33- 4-25	158	suspended
Continental, Tideland permit No. 123, Santa Barbara Co.	33- 4-25	125	suspended
Continental, Tideland permit No. 124, Santa Barbara Co.	33- 4-25	3,122	sd. sh. drilling
Continental, Tideland permit No. 124-A, Santa Barbara	33- 4-25	418	suspended
Continental, Tideland permit No. 125, Santa Barbara Co.	33- 4-25	120	suspended
Continental, Tideland permit No. 126, Santa Barbara Co.	33- 4-25	200	suspended
Continental, Tideland permit No. 127, Santa Barbara Co.	33- 4-25	145	suspended
Continental, Tideland permit No. 128, Santa Barbara Co.	33- 4-25	98	suspended
Continental, Tideland permit No. 129, Santa Barbara Co.	33- 4-25	97	suspended
Exeter Oil Co., Tideland permit No. 163, Santa Barbara	32- 4-25	76	suspended
Getty, Geo. F., No. 120 Carpinteria, Santa Barbara Co.	32- 4-25	375	sd. sh. drilling
Getty, Geo. F., No. 130 Carpinteria, Santa Barbara Co.	32- 4-25	55	cemented
Shell, No. 5 Oxnard, Ventura Co.	14- 2-20	rig	rigging up
Standard, No. 5-9 Saticoy, Ventura Co.	10- 2-22	8,529	redrilling
Prairie Oil & Gas, No. 1 Ventura, Ventura Co.	30- 3-22	4,457	redrilling
Bolsa Chica, No. 1-A Temescal, Ventura Co.	4- 4-18	2,176	br. sh. drilling
Fennell, E. A., No. 1 Lankershim, Ventura Co.	13- 4-19	1,577	hd. sd. drilling
General Pet., No. 1 Fillmore, Ventura Co.	6- 3-19	1,080	sd. sh. drilling
Associated, No. 1 Rincon Creek, Ventura Co.	19- 4-24	1,760	hd. sd. drilling
Calleguas Synd., No. 1 Camarillo, Ventura Co.	6- 1-20	730	hd. sd. drilling
Camarilla Synd., No. 1 Camarillo, Ventura Co.	33- 2-20	205	sd. drilling
Milham Explo., No. 9 Buttonwillow, Kern Co.	8-28-23	4,990	fishing
General Pet., No. 1 Buttonwillow, Kern Co.	6-28-23	2,706	gas well
Shell, No. 1 Lerdo, Kern Co.	23-28-26	mtl.	building rig
Nordon Exp. Co., No. 1 Buttonwillow, Kern Co.	7-29-24	135	suspended
Shell, No. 1 Weed Patch, Kern Co.	29-30-29	3,420	gr. sd. drilling
Shell, No. 1 Edison, Kern Co.	33-29-29	3,952	hd. sd. drilling
Symark Oil Co., No. 1 Edison, Kern Co.	24-29-29	2,130	suspended
Sayre, F. M., No. 1 Edison, Kern Co.	5-30-29	4,220	fishing
Helen Pet., No. 1 Jasmine, Kern Co.	23-25-27	2,101	hd. sd. drilling
Shell, No. 1 Semitropic, Kern Co.	17-27-23	mtl.	building rig
Moran & DeCamp, No. 1 Mojave, Kern Co.	26-10-14	460	hd. sd. drilling
Bardeen, H. A., No. 1 San Emidio, Kern Co.	18-10-23	793	br. sh. drilling
Bardeen, H. A., No. 2 San Emidio, Kern Co.	10-10-23	1,210	sd. sh. drilling
Currency Pet. Co., No. 1 Jacalitos, Fresno Co.	28-21-14	3,680	cleaning out
Petroleum Securities, No. 2 Huron, Fresno Co.	28-20-16	7,390	suspended
Fresno Madera Oil Co., No. 1 Clovis, Fresno Co.	18-12-21	4,290	suspended
Rio Grande, No. 1 Kerman, Fresno Co.	35-13-16	2,812	sd. sh. drilling
Western Gulf, No. 1 Penoche Valley, Fresno Co.	26-15-12	4,524	sd. sh. drilling
Midwest Refining Co., No. 1 Huasna, San Luis Obspo Co.	34-31-15	4,100	gr. sd. drilling
Panorama Oil Co., well No. 1, San Luis Obispo Co.	7-31-21	4,019	fishing
Paso Robles Synd., No. 1 Creston, San Luis Obispo Co.	27-27-11	3,810	cleaning out
Union, No. 1 King City, Monterey Co.	8-22- 8	3,250	suspended
Standard, No. 1 King City, Monterey Co.	23-22- 7	4,250	hd. sd. drilling
Pacific Inland Oil Co., No. 1 Parkfield, Monterey Co.	19-23-15	181	cleaning out
O'Donnell, J. E., No. 1 Dudley Ridge, Kings Co.	7-23-20	3,493	sd. sh. drilling
Penn Western, No. 1 Tulare Lake, Kings Co.	24-21-18	1,338	suspended
Wellport Oil Co., No. 1 Devils Den, Kings Co.	9-24-17	3,545	sd. sh. drilling
Oceanside Oil Co., No. 1 Kreyenhagen, Kings Co.	32-22-16	300	suspended
Richfield Oil Co., No. 1 Kreyenhagen, Kings Co.	33-22-16	....	location
Twin States Oil Co., No. 1 Point Arena, Mendocino Co.	14-12-17	3,190	hd. sd. drilling
Barnhart Trust, No. 1 Oakdale, San Joaquin Co.	3- 2-10	2,960	sd. sh. drilling
White, Roy, No. 1 Pixley, Tulare Co.	8-23-26	4,020	suspended
Terra Bella Oil Co., No. 1 Porterville, Tulare Co.	35-22-27	900	recemented
Getty, Geo. F., No. 1 Chowchilla, Madera Co.	8-10-14	4,343	abandoning

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Simmel, L. G., No. 1 Inglewood, Los Angeles Co.	21- 2-14	5,380	suspended
Raleigh Oil Co., No. 1 Malibu, Los Angeles Co.	1- 2-15	3,880	suspended
Clearwater Oil Co., No. 1 Bellflower, Los Angeles Co.	21- 3-12	5,150	suspended
Burlingham Pet., No. 1 Compton, Los Angeles Co.	17- 3-13	2,806	sd. sh. drilling
Diller, W., No. 1 Watts, Los Angeles Co.	8- 3-17	5,800	fishing
Crimson Pet., No. 1 Compton, Los Angeles Co.	22- 3-13	rig	rigging up.
Ohio, No. 1 Moneta, Los Angeles Co.	35- 3-14	3,850	sd. sh. drilling
Cal. Ventura Oil Co., No. 1 Manhattan, Los Angeles Co.	30- 3-14	6,525	suspended
Cal. Ventura Oil Co., No. 1 Hermosa, Los Angeles Co.	31- 3-14	mtl.	building rig
Archer Oil Co., No. 1 Watson, Los Angeles Co.	17- 4-13	5,557	suspended
Shell, No. 1 Van Nuys, Los Angeles Co.	19- 2-15	1,962	sd. sh. drilling
Anchor Oil Co., No. 1 Puente, Los Angeles Co.	19- 2-10	4,820	suspended
Rucker, R. C., No. 1 Puente, Los Angeles Co.	27- 2-10	3,660	fishing
Sherman, J. W., No. 1 Puente, Los Angeles Co.	33- 2- 8	850	suspended
Keck & Hall, No. 1 Puente, Los Angeles Co.	32- 2- 8	1,120	gas well
Marcel Pet. Co., No. 1 Puente, Los Angeles Co.	31- 2- 8	1,660	oil sand
Los Gatos Oil Co., No. 1 El Monte, Los Angeles Co.	16- 1-11	1,950	suspended
Olympic Corp., No. 1 Calabasas, Los Angeles Co.	18- 1-17	3,330	hd. sd. drilling
Martin, J. W., No. 1 Newhall, Los Angeles Co.	22- 1-17	1,290	suspended
Consolidated Oil Co., No. 1 Newhall, Los Angeles Co.	8- 3-16	1,555	cleaning out
National Sec., No. 1 Newhall, Los Angeles Co.	1- 3-16	874	suspended
Anderson, P. B., No. 1 Hasley Canyon, Los Angeles Co.	1- 3-16	900	suspended
Pioneer Pet., No. 1 Newhall, Los Angeles Co.	14- 3-16	2,838	hd. sd. drilling
Union, No. 1 Coyote, Sansinena, Los Angeles Co.	30- 2-10	3,076	testing
Beard, G. F., No. 1 Brea Canyon, Los Angeles Co.	30- 2- 9	1,099	suspended
Western Gulf, No. 1 Brea Canyon, Los Angeles	28- 2- 9	3,960	cleaning out
Standard, No. 1 Bastanchury, Coyote, Orange Co.	21- 3-10	5,230	sd. sh. drilling
Graham & Loftus, No. 1 Coyote, Orange Co.	18- 3- 9	2,850	cemented
Union Oil Co., No. 1 Richfield, Orange Co.	13- 3- 9	4,203	diabase-drlg.
Mesa Pet., No. 1 Newport, Orange Co.	21- 6-10	4,910	suspended
Hall, H. L., No. 1 Newport, Orange Co.	20- 6-10	692	hd. sd. drilling
Standard, No. 1 Newport, Orange Co.	26- 6-10	....	location
Fidelity Pet. Co., No. 1-A Murrietta, Riverside Co.	23- 7- 3	701	cleaning out
Hemet Pet. Co., No. 1 Ward, Riverside Co.	9- 5- 1	3,560	suspended
Imperial Valley Oil Co., well No. 1, Imperial Co.	32-11-10	2,980	suspended
San Marcos Oil Co., well No. 1, San Diego Co.	9-12- 3	rig	suspended
Turner, S. S., No. 1 Escondido, San Diego Co.	25-12- 2	2,170	suspended
McGregor Synd., No. 1 Del Mar, San Diego Co.	17-14- 3	1,260	sd. sh. drilling
Borderland Oil Co., No. 1 Encinitas, San Diego Co.	12-13- 4	2,400	sd. sh. drilling
Borderland Oil Co., No. 1 Point Loma, San Diego Co.	30-16- 3	2,396	gr. sd. drilling
Grey, H. H., No. 1 Redlands, San Bernardino Co.	25- 1- 2	2,525	fishing
Duncan, N. I., No. 1 Mohave, San Bernardino Co.	8- 4- 6	rig	suspended
Girard & Grimes, No. 1 Corona, San Bernardino Co.	8- 2- 8	1,468	sd. sh. drilling



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CHOOSING A COOPER-BESSEMER

Central Ohio Has Increase in New Work

Largest Gain in Some Time. But One Well Reported From Indiana and Several Dry Holes in Illinois District

By Whit
Staff Correspondent, Central West Fields

FINDLAY, Ohio, Apr. 28.—In the old Trenton Rock area of northwestern Ohio, and near Bowling Green, Wood County, the Plain Oil & Gas Co.'s test in the southwest corner of the J. P. Woodbury, NE, Section 20, Plain Township, produced 5 bbls. initial under pump. Top of Trenton found at 1,334 feet and drilled 119 feet in to a total depth of 1,453 feet.

The Trenton Oil Co.'s test in the northeast corner of the O. Sorg, on the oil map as the S. Burkett farm, Section 14, North Washington Township, Sandusky County, pumped 3 bbls. at a total depth of 1,337 feet or 47 feet in the Trenton. Three miles west of Fremont, same county, T. F. O'Brien's test on C. F. Michaels farm, produced close to 500,000 feet of gas and will be hooked to the Ohio Fuel Gas Co.'s line.

Fossum and others' test, 200 feet from the south line and 600 from the west line of the Otto and Charles Ewald, SW, Section 36, Liberty Township, Seneca County, produced but 1 bbl. at 1,580 feet, or 86 feet in the Trenton.

CENTRAL OHIO

The Central Ohio area had a very fair week in both completions and new work under way. There were 26 completions, seven producers with an initial of 316 bbls., six dry holes and 13 gas wells, and in new work starting there were 25 new locations staked and 26 new wells started drilling, a total in new work of 51, the largest increase for some time.

In Ashland County, Greene Township, the Ohio Fuel Gas Co. has a light gas well in No. 1-4,987 E. N. Weltmer farm, Section 3, and made a location for a second test on the George W. Tugend, Section 15, same township. Same company brought in a fair gas well in No. 1-5,023 Sadie Stevenson farm, Section 11, Jackson Township. Stewart and others' second test on the F. P. Myers, Section 29, Perry Township, produced 8 bbls. initial from the Berea sand from 724-76 feet. Robinson and others drilled a dry hole in a second test on the Emma Jarvis, Section 32, Vermillion Township, in the Berea from 659-76 feet. There was a slight showing of oil but failed to make a commercial producer. Same parties are drilling No. 5 John P. Smith, Section 9, Lake Township. Ohio Fuel Gas Co. made a location for No. 2-5,131 All Ott farm, Section 29, Orange Township.

In Medina County, Lafayette Township, Barnhart and others' test on W. A. and A. J. White, Section 26, is a failure in two sands, the first from 3,132-38 feet and from 3,158-70 feet. Ohio Fuel Gas Co. is drilling No. 2-5,114 Clara M. Jones, Section 29. Same company is drilling No. 1-5,115 George Sutorious farm, Lot 10, Chatham Township.

Lorain County

In Lorain County, Ridgeville Township, a dry hole was drilled by the Ohio Fuel Gas Co. in No. 1-5,034 Edward P. Wilhelmy farm, Lot 31. J. W. Cushing made a location on the Ellen Burgert, Lot 41, same township. The Daugherty Co. is drilling on the John P. Hebebrand, Lot 13, Carlisle Township, and the Ohio Fuel Gas Co. is drilling No. 1-5,094 Frank Rahl farm, Lot 5. In Eaton Township, Dillon & McFrederick are working on the Thomas Lounds heirs farm, Lot 93.

In Wayne County, Chester Township, Harmon and George have an average gas well on the J. Garver heirs, Section 5. The first of the deep sand group was dry from 3,094-96 feet, and the gas found in a lower pay from 3,108-10 feet. Hulse & Kundtz made a location on the Edward Landis, Section 9. Barnhart and others are drilling No. 5 K. W. Taylor, Section 8, Congress Township.

In Holmes County, the Ohio Fuel Gas Co. made a location for No. 1-5,126 on the J. J. Frank farm, Sections 8, 16 and 17, Washington Township.

In Richland County, Worthington Township, the Ohio Fuel Gas Co. set a stake for No. 1-5,111 Francis E. Bowen farm, Section 25.

In Knox County, Brown Township, a fair gas well was drilled by the Ohio Fuel Gas Co. in No. 6-5,036 Ray R. Koppert, Lots 4 and 7, and the Arkansas Fuel Oil Co. is drilling No. 2 George Miller, Section 22, Jackson Township.

In Coshocton County, Monroe Township, a very fair gas well was brought in by the Ohio Fuel Gas Co. in No. 1-5,025 Lewis P. Reiss, Lots 8 and 9, from 3,225-74 feet, and made a location for No. 1-5,129 John Snow farm, Section 8. Same company made a location on the Keeneth E. Mas Lood, in the third quarter section of Franklin Township.

Summitt County

In Summitt County, Franklin Township, Cameron and others have a good gas well on the Catherine Messner farm, Section 25, from 4,053-81 feet. F. A. Brendall and others are drilling No. 3 Edward Dunn, also No. 1 D. and S. Thursby, both in Section 35 in Greene Township. Arthur & Reeves have an average gas well on the Alice Wise, Lot 25. Gas was found between 4,460-85 feet, and the next sand was dry from 4,488-99 feet. East Ohio Gas Co. is drilling on the W. C. Beck, Section 7.

In Licking County, Fallsburg Township, the Wittmer Properties, trustees, struck a nice oil well with an initial of 150 bbls., at from 2,859-2,924 feet. Hulse & Kundtz' No. 12 John Chaney, Section 21, same township, pumped an initial of 10 bbls. from 2,869-2,910 feet. Emerald Petroleum Co. is starting No. 4 Earl Rine, Section 12, same township. In Perry Township, the Whitehill Oil Co. is drilling No. 14 A. A. Ashcraft, Section 9. In Hanover Township, Hope Construction & Refining Co. is drilling on the Miner-Obannon, Section 16.

In Muskingum County, Jackson Township, the Pure Oil Co.'s second test on the Jasper Ashcraft, Section 4, pumped 52 bbls. the first 24 hours from 3,095-3,137 feet, and is drilling No. 2 Albert Holman, Section 12. Hope Construction & Refining Co. found a 10-bbl. pumper on the B. O. Horton, Section 6, from 3,-053-83 feet. In Clay Township, considerable new work is springing up. The Kachelmacher estate's second test on the Elk Coal Co. property, Section 3, pumped an initial of 81 bbls. from 3,554-3,601 feet, total depth 3,604 feet. Same parties are starting No. 3 on the Elk Coal land. Crawley and others have a light gas well in No. 1 Augustus Cherry, same section, from 3,472-90 feet, total depth 3,615 feet. Same firm is starting No. 3 on the Nelson McCoy and others, same section. William Kline and others are drilling No. 1 Ramsbottom, Lot 3, and on another Ramsbottom tract are drilling No. 4, same section. Bell & Scholl are starting No. 1 on the Ellis N. Funderburg, same section. Noah Andrews made a location for No. 1 on State of Ohio property, same section, and Abe Snider and others are drilling No. 2 Eliza O. Beem, Section 3. In Perry Township, the Wittmer Properties, trustee, is drilling No. 1 Wilmer A. Darley, Section 15, and made a location on the Emma V. Buchannan, Section 11. Ohio Fuel Gas Co. is drilling No. 1-5,061 J. L. Sutter, Section 7. In Highland Township, the Wehrle Co. is drilling on the Chester O. Hardy, Section 15, and the Hydraulic Pressed Brick Co. is starting a test on its own property, Section 34, Newton Township.

In Athens County, Ames Township, Fox & Mosure's No. 8 Robert Bean, Section 13, pumped 5 bbls. initial from the Cow Run sand from 210-13 feet, and drilling No. 9, same farm. Ohio Fuel Gas Co. is drilling No. 1-5,026 Nellie Ahrle, Section 6. Same company brought in an average gas well in No. 1-5,028 O. D. Grimes, Section 36, Berne Township, and is drilling No. 4-5,108 Fred S. Moore farm, fractional Section 6, Lodi Township. Fairfield Oil Co.'s test on the Sam Jeffers, in fractional Section 34, same township, is a light gas well. In Alexander Township, Park Bowser and others have a good gas well on the E. C. Russ, Section 26, in the Maxon sand from 604-09 feet, and is starting No. 2 Dred R. Cooley, Section 28, same township. Townsend Oil & Gas Co. has an average sized gas producer in No. 9 Isaac Castle, Section 30, same township, in the Berea sand from 1,229-37 feet.

Morrow County

In Morrow County, Westfield Township, the Lee Oil & Gas Co.'s test on the Charles Weist farm, had a slight showing of oil from 998-1,008 feet, but by a little deeper drilling went into a heavy dose of water, and it is termed a duster so far as commercial production is concerned.

In Tuscarawas County, Oxford Township, the Gordon Oil Co. is drilling a second test on the Sarah E. Ripley, Section 21. In Washington Township, the Gordon Co. is getting busy, and is drilling No. 3 Thomas R. and Rose Shearer, Section 34; location for No. 2 George W. Asher, Lot 31, also for No. 1 Loverige Mook, Lot 36, same township, and George Jewell and others made a location for No. 1 Anna Mook, Lot 36. In Warwick Township, Blackstone and others are starting a test on the A. H. Boltz, in the second quarter section.

In Stark County, Lawrence Township, F. A. Brendall and others have a nice gas producer in a second test on the John Neidert, Section 3, and drilling No. 3 Charles Smith, same section, and No. 1 L. J. Baucher, Section 1, same township.

In Guernsey County, the Ohio Fuel Gas Co.'s No. 3-5,012 W. A. Alloway farm, Section 1, Wheeling Township, had an oil showing in the Niagara lime, but nothing worthwhile and it goes as a dry hole at 3,649 feet. East Ohio Gas Co. made a location on the Clarence Quillen, Section 10, and the Kemrow Co. made a location for No. 2 J. W. Fowler, same section.

In Belmont County, Somerset Township, Shay McMullen has a light gas showing on the Edward Miller, Section 16, in the Berea sand from 1,915-23 feet, total depth 1,930 feet.

In Morgan County, Marion Township, Bode & Woodyard's No. 34 Hiram K. Croy, Section 31, pumped but 1 bbl. from the upper Cow Run sand from 418-63 feet, total depth 495 feet. W. S. Harris' No. 3 Isaac Endicott, Section 34, pumped 5 bbls. from the Cow Run, from 604-09

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WILDCATTING BECOMES MORE ACTIVE IN THE WESTERN KENTUCKY REGION

By Whit
Staff Correspondent, Kentucky-Tennessee

OWENSBORO, Ky., Apr. 28.—Wildcatting is the most active development of western Kentucky at the present time and every operator is anxious to find a new Stray sand pool, like those found in northern Ohio County, where the oil is found at a rather shallow depth, at little cost, similar to the new Buford Pool, Bartlett Pool, Barnett's Church Pool, Ambrose-Weller, and other pools that proved rich. One of the recent pools is the Buford which has developed some very nice producers and the Niagara Pool, in Henderson County, is making a very fine showing. The completion of a well recently south of Niagara, near Robard, near the division line between Henderson and Webster Counties and midway between the Niagara and Sebree, has attracted much attention and many new locations have been staked out for wells that will be drilled at once.

In Ohio, Daviess, Hancock, McLean and Henderson Counties there are more than 100 rigs working and many more will be on the ground as soon as they can be moved to locations. The outlook is for a very busy summer in the oil regions.

Ohio County

The best completion from the Ohio County area of Kentucky since the last review is Hupp & Duff's No. 17 on the Ellis Bartlett farm, in the Bartlett Pool, with an initial of 125 bbls. Watts and Vickers have what shows for a 30-bbl. producer on the Schultz farm. Louisville Gas & Electric Co.'s No. 7 on the R. A. Miller 175 acres, in the Haynesville area, is a 10-bbl. pumper.

Leeper Oil Co.'s No. 2 J. W. Greer, 600 feet from the north line and 200 feet from the west line of the lease, in the Whittaker Pool, pumped 15 bbls. the first 24 hours.

Ford, Buckner and LaRue's test on the C. G. Harrison, near Deanfield, pumped 10 bbls. initial. Rudolph and Kirkpatrick's No. 13 well, 800 feet from the south line and 400 feet from the east line of the C. H. Greer 187 acres, same pool, pumped 10 bbls. first 24 hours. Penn-Indiana Oil Co.'s No. 13 well, 1,-500 feet from the south line and 200 feet from the east line of the C. A. Kelley 260 acres, in the same pool, produced an initial of 15 bbls.

In the Whittaker Pool, E. G. Purtle and others' No. 7 well, 800 feet from the north line and 400 feet from the south line of the Charles Roach north 130 acres, proved a dry hole. James C. Ellis got another, 600 feet from the south line and 200 feet from the west line of the K. B. Westerfield, same pool.

Daviess County

Mecca Oil Co.'s No. 4 on the Zulu Johnson farm, in the Red Hill Pool, of Daviess County, showed a 24 hours' gauge of 15 bbls. Proctor and others' second test on the H. Asher farm, was dry.

Petroleum Exploration Co.'s No. 5 on the J. M. Clark, in the Utica Pool, produced around 20 bbls. at 1,414 feet. Evans & Harrison's No. 4 I. J. Clark, same pool, is good for 15 bbls.

Wah-Shah-She Oil Co. and others' No. 3 on the Frank Fuqua 71 acres, in the Jones Pool, pumped around 35 bbls. The

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Slight North Extension to Penn Pool

Another High Lime in Test to North of Pool. Wildcat in Scurry County. Ogden Pool Test Nearing the Pay

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Apr. 28.—A slight northern extension of the Penn Pool, Ector County, and another high line in a test north of the pool were features in that county, while a wildcat in Scurry County estimated good for 10 bbls. per day on the pump buoyed up the spirits of operators and companies interested in that part of West Texas. Another well was in process of completion in the Taylor County producing area, and another appeared as a possible producer in the Pecos Valley area, northern Pecos County, while a drilling test in the Ogden Pool, Andrews County, neared the pay horizon.

Big Lake Oil Co.'s No. 1-C, located 2,598 feet from the north and 250 feet from the east of Section 1, Block 2, University land, in the Big Lake Pool, Reagan County, is now the deepest well in that pool, having reached a total depth of 8,608 feet. Group No. 2-B University flowed only 67 bbls. in 12 hours after being connected to storage, and appears as a smaller well than expected when it topped the pay at 8,131 feet and was shut down at that depth, to put on production. It is producing more than 10,000,000 feet of gas with this amount of oil. Southern Crude Oil Purchasing Co.'s No. 1 J. M. Cowden, 2,310 feet from the north and 330 feet from the west of Section 26, Block 43, Township 1n, T.&P. Survey, near the northern edge of Ector County, is evidently being drilled to try to extend the Andrews County production to the south, or to uncover a "high" somewhere between the Ogden producer in Andrews County and the Penn Pool in Ector County, and will be closely watched as an interesting test.

Independent Oil & Gas Co. and Tidal Oil Co.'s No. 1 Scharbauer, in the NW cor., Section 6, Block 44, Township 3s, T.&P. Survey, northwest of the Penn Pool, topped the brown lime at 3,150 feet with an elevation of 2,924 feet, and the white lime at 3,325 feet, 26 feet higher than top of the white lime in the Shell producer, approximately three-quarters of a mile to the southeast in the Penn Pool. The test is now fishing tools at 3,362 feet, but should be completed this week if tools are readily recovered. If a producer, it will mean a considerable extension to the pool.

Shell Petroleum Corp.'s No. 1 Jones, in Section 6, Block 44, extended the Penn Pool a short distance to the north when it started flowing from pay topped at 3,685 feet. It was completed at a total depth of 3,725 feet, no gauge reported for the first 24 hours' flow, but it flowed at the rate of 164 bbls. in eight hours.

Sunray Purchase

The Llano Oil Co., of Fort Worth, sold an undivided one-half interest and operating control in its tract in Section 6, Block 44, Township 3s, which consists of approximately 141 acres lying just south of the Texas & Pacific Railroad in the north half of the Section, to the Sunray Oil Co. of Tulsa, marking the entrance of this company into the Permian Basin of Texas. It is rumored that 12 locations have been contemplated, but this is probably only mere rumor, although there will no doubt be an offset made at once to the Independent Oil & Gas Co. and Tidal Oil Co.'s test in the northwest quarter of the section.

The Penn Pool now has 19 producing wells making better than 9,000 bbls. with the wells pinched. The Humble Oil & Refining Co. completed two producers in the field this week and the Landreth Production Co. completed its No. 2-S University.

The Texas Company's No. 7 Connell in Section 1, Block B-16, west of the Penn Pool, topped the salt at 903 feet this week making it look quite favorable in regard to this marker.

Deep Rock Pool

All of the three tests of the Deep Rock Pool in Andrews County are now drilling below 2,950 feet, each encountering gas as shown: No. 1 Harris, with an elevation of 3,180 feet, topped the gas at 2,940 feet and registered 1,500,000 feet. No. 1 Miles topped the gas at 2,915 feet with an elevation of 3,190 feet and encountered 1,000,000 feet of gas. No. 1 King topped the gas at 2,903 feet with an elevation of 3,206 feet, encountering an estimated 2,000,000 feet of gas. No. 1 Ogden, the discovery well of this new pool, topped the first gas at 2,895-2,900 feet, had a showing of oil from 2,900-10 feet and encountered an increase in gas, amounting to an estimated 2,000,000 feet from 2,910-26 feet. Surface elevation of this well is 3,206 feet.

Southern Crude Oil Purchasing Co.'s No. 1 Eaton, 330 feet from the southeast and 1,650 feet from the southwest of Section 35, Block 3, H.&T.C. Survey, approximately 4 miles northeast of the Pecos Valley Pool, is shut down at 1,593 feet to test, with 300 feet of oil in the hole. It had its first showing of oil at 1,437 feet, and a showing of gas at 1,554 feet with an increase at 1,570 feet. This test appears as a possible producer, with the chance of proving some of the acreage to the northeast of the producer, and adding to the daily average of this small sand pool.

Scurry County Pool

Byrd and Harmon's No. 1 Murphy, Jr., a semiwildcat of the Scurry County Pool, Section 114, Block 97, H.&T.C. Survey, is creating a little interest due to its topping a pay at 1,750 feet with an increase in oil from 1,822-32 feet, and being estimated good for 10 bbls. on the pump. It is now drilling below 2,160 feet. The only producing area in Scurry County, near this well; has five producing wells averaging about 17 bbls. of oil per day. The peculiar feature about this pool is the amount of cold air which is often struck in the wells, the air being harnessed to pump the small wells of the pool.

A. H. Gibson and others' No. 1 Cody in Lot 28, Guadalupe County School lands, west offset to Adams-Ferguson-Hobb's No. 1 Lowe producer, is shut down at 2,395 feet for storage and promises another producer for this new pool. A sandy lime pay was logged at 2,370-77 feet and the hole filled 700 feet with oil. An increase in oil was found from 2,394-95 feet and the hole filled 1,200 feet with oil. This is the same pay as found in the discovery.

The Humble Oil & Refining Co. is laying three-quarters of a mile of 4-inch line from Sinclair Oil & Gas Co.'s No. 1 Steele to the extension well of the Midwest Exploration Co. on its Steele lease in Section 210, Block 1, B.B.B.&C. Survey, and it will at last have an outlet for its production which is estimated at 450 bbls. per day on the swab. The well has been standing shut down for several months for lack of pipe line outlet.

Distribution Figures

Distribution in the West Texas district for the last period showed 21,529 bbls. of oil going from storage via main trunk lines and via tank cars. For the past few weeks storage has been drawn on to around 44,000 bbls. per day, except the period date from April 2 to April 9 when storage withdrawals dwindled to 17,730 bbls.

The Winkler County advisory committee will hold a proration meeting at 10 a.m. in the Texas Hotel, Fort Worth, on May 3, to discuss further proration of the Hendricks Pool, Winkler County. The pool is gradually falling off in production, this week showing a daily average of 79,440 bbls., whereas last week's report showed it to be 80,295 bbls. The committee, however, will no doubt vote to extend proration for another period.

WEST TEXAS PRODUCTION
Week ending April 26

County—	Wells	Prod.
Andrews	1	166
Crane	341	34,661
Crockett	47	1,825
Ector	19	9,355
Fisher	7	848
Garza	5	48
Glasscock and Howard	505	10,340
Jones	73	1,295
Loving	21	1,220
Mitchell	145	2,193
Pecos	449	117,510
Reagan	258	16,480
Runnels	3	16
Scurry	5	17
Upton	250	8,856
Ward	24	1,535
Winkler	602	79,440
Total this week	2,755	315,605
Total last week	2,739	313,643
Difference	16	1,962

PIPE LINE RUNS
April 9 to April 16
Runs Through Trunk Lines

	Last period
Atlantic P. L. Co., Atreco	27,696
Gulf P. L. Co. to coast via Ranger	43,640
Humble P. L. Co., Comyn	33,997
Humble P. L. Co., Ingleside	21,681
Illinois P. L. Co., Del Rio	40,248
Magnolia P. L. Co., De Leon	17,024
Panotex P. L. Co., El Paso	9,942
Shell P. L. Co., Healdton, Okla.	39,371
Shell P. L. Co., Houston	17,656
The Texas Company, Houston	21,959
Total	273,214

Tank Car Shipments

Landreth Prod. Corp., Crossett	516
Orient Co., McCamey	95
Southern Crude O. P. Co., Wickett	20,714
Thomas & Brann, Grant City	220
Total	21,545

Runs to West Texas Refineries

Amarillo Ref. Co., Pyote	645
Big Spring Ref. Co., Big Spring	2,258
Blue Bonnett Ref. Co., Wickett	0
Burford Ref. Co., Pecos	6,220
Col-Tex Ref. Co., Colorado	7,000
Cosden Ref. Co., Big Spring	5,566
Great Western Ref. Co., Big Spring	3,107
Humble O. & R. Co., McCamey	6,937
Mid-Tex Ref. Co., Midland	0
Richardson Ref. Co., Big Spring	4,263
Tonkawa Ref. Co., Pyote	2,822
Wickett Ref. Co., Wickett	0
Total	38,616

Summary

	Last period	This period
Pipe line runs through trunk lines	268,191	273,214
Tank car shipments	21,444	21,545
Runs to West Texas refineries	38,427	38,616
Total daily distribution	328,062	333,375
Total daily production	310,332	311,846
Daily aver. from storage	17,730	21,529

WILDCAT OPERATIONS IN WEST TEXAS

Week Ended April 28

Company, farm and location—	Remarks—
ANDREWS COUNTY	
Deep Rock Oil Co. et al's No. 1 Mathis, 900 ft. from S and W. Sec. 4, Blk. A-46, Public School Land	Top salt 1,730 ft.; shut down 2,875 ft.
Deep Rock Oil Co.'s No. 1 Miles, 990 ft. S. 1,650 ft. E of NW cor., Sec. 22, Blk. A-46, School Land	Drlg. 3,150 ft.
Fuhrman Pet. Corp.'s No. 1 Ford, 440 ft. from S and 2,200 ft. from W of Sec. 16, Blk. A-43, Public School Land	Cleaning out 1,370 ft.
Deep Rock Oil Co. et al's No. 1 King, 330 ft. from N and 2,310 ft. from E. Sec. 11, School Blk. A-46	Top salt 1,697 ft.; drlg. 3,385 ft.
R. R. Penn's No. 1 Wilson, C. Sec. 20, Blk. A-37, School Blk.	Running 12½-in. casing 450 ft.
BORDEN COUNTY	
Phillips et al's No. 1 Goode, 330 ft. N and E of SW cor. SE of Sec. 46, Blk. 33, Twp. 4n. T.&P.R.R. Sur.	Running 8¼-in. casing 3,625 ft.
BREWSTER COUNTY	
Brewster Oil Co.'s No. 1 fee, 2,640 ft. S and 598 ft. E of NW cor., Sec. 45, Blk. G-15, G.C.&S.F. Sur.	Shut down 1,935 ft.
E. L. Chapman's No. 1 Skinner, C SW SE, Sec. 100, Blk. 2, G.C.&S.F. Sur.	Shut down 1,250 ft.; hole full water 1,135-85 ft.
Trans-Pecos Oil & Gas Co.'s No. 1 Jones, 920 ft. from N and 2,500 ft. from E of Sec. 18, Blk. G-15, G.C.&S.F. R.R. Sur.	Show oil 1,830 ft.; shut down 2,137 ft.
Van McDaniel's No. 1 McIntyre, SE cor., Sec. 59, Blk. 352, 7 mi. S of Alpine	Shut down 1,740 ft.
COKE COUNTY	
Arkansas Fuel Oil Co.'s No. 1 Stepp, 1,020 ft. NE. 2,340 ft. W of SE cor., Sec. 35, Blk. 1-A, H.&T.C. Sur.	Shut down 950 ft.
Cates & Fitzhugh's No. 1 Mimms, 660 ft. N and W of SE cor., Sec. 39, Blk. W, T.&P.R.R. Sur.	Location.
Lipan Oil Co.'s No. 1 E. C. Rawlings, Sec. 390, Blk. 1-A, H.&T.C. Sur., elev. 2,750 ft.	Shut down 3,050 ft.
CONCHO COUNTY	
Duffy et al's No. 1 Callan, 1,520 ft. N and 1,120 ft. W of SE cor., Sec. 21, Blk. 10, H.&T.C.R.R. Sur.	Spudded and shut down.
Turner et al's No. 1 Borsig, 150 ft. from S of NE cor., G. Emmig Sur. 130, 6 mi. W of Paint Rock	Shut down 735 ft.
Watchorn Oil & Gas Co. et al's No. 1 Noyes, 1,320 ft. from N and W of Sec. 19, Blk. 70, H.&T.C. Sur.	Shut down 1,760 ft.

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WEST TEXAS COMPLETIONS
Week Ending April 23

Ector County

Gulf Production Co.'s No. 1 State was completed for an initial production of 2,432 bbls. Top of pay 3,565 feet. Total depth 3,710 feet.

Humble Oil & Refining Co.'s No. 5 York encountered the top of the pay at 3,634 feet, was drilled to a total depth of 3,730 feet, and had an initial production of 815 bbls.

Humble Oil & Refining Co.'s No. 6 York reached the top of the pay at 3,640 feet, was drilled to a total depth of 3,746 feet, plugged back to 3,716 feet and shot from 3,666-3,716 feet with 200 quarts. The initial production was 386 bbls.

Landreth Production Co.'s No. 2-S University was completed at a total depth of 3,670 feet, and had an initial production of 1,320 bbls. The top of the pay in this well was 3,570 feet.

Howard County

American-Maracaibo's No. 4-A Settles reached the top of the pay at 2,177-2,260 feet, and was drilled to a total depth of 2,261 feet. The initial production of the

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Gray County Gains 2,000 Bbls. Daily

Two Good Producers Completed in Panhandle by Phillips Petroleum Co. Wilcox-Pampa Co. Well Shows 3,650 Bbls. Initial

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Apr. 28.—Gray County scored a 2,000-bbl. per day increase this week when several wells were completed, the two best ones being owned by the Phillips Petroleum Co., one coming in for an initial production of 2,500 bbls., while the other showed up with an initial production of 1,300 bbls.

The Phillips Petroleum Co.'s No. 1 Jimmy Foxx, NW cor. NE, Section 6, Block 3, I.&G.N. Survey, started at 2,500 bbls., together with 40,000,000 feet of gas from a depth of 2,870 feet. The same company's No. 1 in the SE cor. NW SW, Section 13, Block 3, I.&G.N. Survey, started at 80 bbls. an hour, and its No. 2, SW cor. NE SW, Section 3, started at 1,300 bbls. No. 1 was completed about 10 days ago and No. 2 and No. 1 Foxx were completed in the past week.

Wilcox-Pampa Oil Co.'s No. 13 Combs-Worley was a good well with an initial production of 3,650 bbls.

Gulf Production Co.'s No. 1 Bowers was a good well with an initial production of 1,222 bbls. It extended the Bowers Pool approximately three-fourths mile to the southeast.

Due to the increase shown by Gray County and a small increase in Hutchinson County, the Panhandle district showed a daily gain of 1,655 bbls. over last week, while the Wichita Falls district fell off 2,016 bbls. per day, and the Ranger district fell off 1,085 bbls. per day.

Moore County's late discovery, Operators Oil and Dana Oil & Gas Co.'s No. 1 Jones, which created a large amount of interest during the past two weeks when it opened up a new area to production, but was later drilled into salt water, was plugged back and is now showing up as making a comeback with a gradual increase.

This test topped the pay at 3,387-95 feet and flowed 130 bbls. the first hour, and flowed at the rate of 75 bbls. per hour the first five hours, 50 per cent water. It was plugged back to 3,407 feet, and is now averaging around 110 bbls. daily. One offset location has been staked to date, while several other locations have been mentioned.

Cooke County Discovery

The outstanding news from the Wichita Falls district came from the southwest part of Cooke County, where the Gulf Production Co. has a block of approximately 6,000 acres and is drilling on the Donald Ranch, 330 feet from the south and east of Donald's 339-acre tract, 17 miles southwest of Gainesville. It is in the J. Guffey Survey abstract 1,545.

The bit encountered a sand at 2,655-71 feet and the test swabbed 40 bbls. of oil in four hours, but when it was cleaned out and drilled deeper the production decreased to about 1 bbl. per hour. Gravity of the oil is 40.3. Although this well may not make a commercial producer it will undoubtedly open up a new play through the southwestern part of Cooke County between two known Ellenberger "highs."

Fourteen locations have been made near Nash & Windfohr's No. 1 McCloud, the new deep discovery of the Graham Pool, Young County, and this area is getting an extensive new play due to the completion of this phenomenal well, which is now flowing only 375 bbls. of oil per day and 250 bbls. of water after coming in for an initial production of around 1,000 bbls. per hour from pay found at 3,752 feet.

T. B. Slick purchased Pitzer & West's holdings, consisting of 1,509 acres and 300 bbls. daily production for a reported sum of $300,000 in cash and the same amount in oil. He also purchased an 180-acre lease in the Paul Pier Survey, Abstract 219, from the Canyon Oil & Gas Co. for a reported consideration of $250,000 in cash and the same amount in oil. Many other deals have been made on surrounding acreage, and it looks to be one of the most active spots in the Wichita Falls district for some time to come.

Mr. Slick also purchased a straight commercial lease on 4,000 acres 3½ miles northwest of the Graham Pool, on the Jeffrey ranch, and will no doubt put down some tests immediately.

As a result of the Nash & Windfohr deep discovery, several wells have been announced for deeper drilling, the wells producing a small daily amount from the shallow pay found around 2,200 feet. If these tests prove profitable, many other shallow producing wells may be expected to drill deeper.

Olney Pool

Nineteen producers have been completed in the townsite pool of Olney in north Young County since Cullum & Perkins opened up this pool in May of this year, and 14 wells are drilling or preparing to drill, while many new locations have been announced each week, and the pool is vying for interest with the Graham Pool. The producing sand in this pool is found around 1,000 feet, consequently it is rather difficult to keep up with all of the drilling wells since they can be spudded in and completed within 10 days' time. Along with Albany, Cisco and many other North Texas oil towns, Olney is also seeing the completion of wells right in its backyard, and several wells have been completed within the town to date.

Cisco now has a gas well within the confines of the city limits for Anna Belle Oil Co.'s No. 1 Paschall on the north side of the town, is shut down at 3,604 feet after striking 1,440,000 feet of gas at 3,449-54 feet. This test was drilled as a result of the discovery of Bearman and others' No. 1 Kincade, which is about three-fourths of a mile farther to the north. It was completed in November, 1929, for an initial production of around 110 bbls. of 36.1 gravity oil, and immediately drew much attention to the surrounding acreage, for it is in a rank wildcat area. It had an oil show at 3,402 feet and was drilled to a total depth of 3,482 feet, striking 66,200,000 feet of gas at that depth. The Anna Belle Co.'s test will no doubt be drilled deeper in an endeavor to pick up the pay found in the Kincade well.

In returning to the Nash & Windfohr's well in the Graham Pool it may be interesting to note that the Panhandle Refining Co. has loaded out 38 tank cars with oil picked up from the ravines around the well, and is paying 53 cents per barrel for this oil, which is high gravity.

The Eastland oil pool, Eastland County, which extends over a considerable amount of territory, and is widely scattered, has produced 1,100,000 bbls. of oil up to April 15, 1930.

The George Pool, Brown County, produced 530 bbls. from 50 wells as of April 23, 1930.

Repressuring Project

The Simms Oil Co. purchased around its lease in the Clear Creek Pool, 2 miles southeast of Bangs, the Owne Oil Co., Haskell, Witherspoon, Foster and Sandford properties, which are all in the Leach fee. It has a total of 26 producing wells with 20 bbls. daily production, and the approximate total depth of the wells is 600 feet. It is the Simms company's intention to repressure the pool.

The Kewanee Oil & Gas Co. purchased Young Brothers, Alexander and Woodley Petroleum Co.'s lease in the Black and Cross Cut Fields, with a total of 35 producing wells, 5 key wells with 398 bbls. of daily production, and 482,000 feet of gas per day which has an average of 2.66 gasoline content.

Several wells in the Eastland Pool, Coleman County, are dead and others are gradually diminishing in production and going dead. Plans have been made in reference to repressuring, and the pool may be brought back to a nice daily average if successfully repressured.

This pool was the most interesting area in Coleman County during the last six months of 1929 and the fore part of 1930, but has gone the way of many flush production pools in rapidly falling off in production and becoming a stagnant pool so far as interesting news is concerned.

It may be interesting to note that three wells in the Overall Pool, Coleman County, were dry and abandoned this week, not adding any to the appearance of this small field. One was drilled by the Atlantic Oil Producing Co., one by the Continental Oil Co. and one by McCamey & Whitfield.

The Lloyd Pool, which was the most interesting area in southern Coleman for several months, completed another well this week in Lloyd Oil Corp.'s No. 1 Bartholomew. It came in for an initial production of 35 bbls., about the average initial of the wells drilled in the pool.

NORTH TEXAS PRODUCTION
Week ending April 26

Panhandle District—	Prod.
Carson County	8,930
Hutchinson County	22,310
Gray County	63,175
Moore County	500
Potter County	....
Wheeler County	560
Total this week	95,475
Total last week	93,820
Increase	1,655
Wichita Falls District—	
Archer County	18,068
Baylor County	1,075
Clay County	745
Cooke County	4,040
Foard County	245
Jack County	4,065
Haskell County	55
Montague County	6,435
Throckmorton County	1,165
Wilbarger County	24,960
Young County	20,970
Wichita County	25,369
Total this week	107,184
Total last week	109,200
Decrease	2,016
Ranger District—	
Brown County	6,875
Callahan County	3,449
Coleman County	4,890
Comanche County	491
Palo Pinto County	635
Eastland County	4,915
Shackelford County	6,209
Stephens County	5,475
Total this week	33,349
Total last week	34,064
Decrease	724
Grand total this week	235,999
Grand total last week	237,084
Decrease	1,085

WILDCAT OPERATIONS IN TEXAS PANHANDLE

Week Ending April 28
CARSON COUNTY

Company, well, farm, name, section and block—	Remarks—
Danciger O. & R. Co.'s No. 1 Block, 330 ft. N and E lines, Sec. 112, Blk. 4, I.&G.N. Sur.	S.D. 2,985 ft.
Danciger O. & R. Co.'s No. 1 Byrum, 990 ft. N, 330 ft. W. SW, Sec. 188, Blk. 3, H.&G.N. Sur.	Location.
Delmar Oil Co.'s No. 5 Noel, 330 ft. S and W, NE cor. W½ SE, Sec. 198, Blk. 3, I.&G.N. Sur.	S.G. 3,000-10 ft.; S.D. 3,131 ft.
Cockrell-McIlroy Oil Co.'s No. 1 Eller, 330 ft. S and W, NE cor. NW, Sec. 200, Blk. 3, I.&G.N. Sur.	Drlg. 3,085 ft.
Cockrell-McIlroy Oil Co.'s No. 1 Simms, 330 ft. S and E, E 140 ac., N 160 ac., S 320 ac., Sec. 11, Blk. 7, I.&G.N. Sur.	Drlg. 2,530 ft.
Empire G. & F. Co.'s No. 1 Archer-B, 330 ft. N and E, SW cor. SW, Sec. 139, Blk. 3, I.&G.N.R.R. Sur.	Location.
Empire G. & F. Co.'s No. 1 Bennett, C SE, Sec. 6, Blk. B-5, B.&B.R.R. Sur.	Drlg. 2,525 ft.
Empire G. & F. Co.'s No. 2 Fields, 990 ft. N and W Sec. 13, Blk. 4, I.&G.N. Sur.	Rigging up.
H.A.M. Oil Co.'s No. 1 Cooper, 330 ft. S and W, E½ NE, Sec. 5, Blk. 9, H.&G.N.R.R. Sur.	T.D. 3,105 ft.; 2,000 ft. oil in hole.
Humble O. & R. Co.'s No. 2 Combs-Worley, 330 ft. S, 240 ft. E, NW cor. N½ SE. Sec. 36, Blk. 3, I.&G.N. R.R. Sur.	Location.
McClintock et al's No. 2 Garner, 330 ft. W and S of E 55 ac. of N 80 ac., NW, Sec. 105, Blk. 4, I.&G.N. R.R. Sur.	Drlg. 1,275 ft.
Phillips Pet. Co.'s No. 1-A Garner, 430 ft. S line, 330 ft. W. Sec. 114, Blk. 4, I.&G.N. Sur.	S.D. 3,004 ft.
Phillips Pet. Co.'s No. 1 Pickens, 990 ft. E line, 230 ft. N line, NE cor., Sec. 31, Blk. 7, I.&G.N.R.R. Sur.	Drlg. 675 ft.
Prairie O. & G. Co.'s No. 2 Nail, 330 ft. N and W lines, N½ E½ SE, Sec. 198, Blk. 3, I.&G.N. Sur.	10,000,000 ft. gas 2,830-2,985 ft.; S.D. 3,123 ft.
Shamrock O. & G. Co.'s No. 1 Thompson, 330 ft. S and W lines, E 80 ac., NE, Sec. 5, Blk. 7, I.&G.N. Sur.	Drlg. 1,875 ft.
Shell Pet. Corp.'s No. 1 Percival, 330 ft. N and E, SE, Sec. 199, Blk. 3, I.&G.N. Sur.	S.D. 600 ft.

(Continued on Page 106)

TEXAS PANHANDLE COMPLETIONS
Week ending April 26
Carson County

Champlin Refining Co.'s No. 5 McConnell reached the top of the pay at 3,088 feet, was drilled to a total depth of 3,174 feet, and had an initial production of 35 bbls.

Empire Gas & Fuel Co.'s No. 1 Thorp was dry and abandoned at a total depth of 3,952 feet.

Osborne and others' No. 3 Percival was dry and abandoned at a total depth of 3,050 feet.

Ryan Consolidated Oil Co.'s No. 8 Black encountered the top of the pay at 3,044 feet, drilled to a total depth of 3,126 feet, and was shot with 300 quarts from 3,044-3,126 feet. The initial production for this well was 175 bbls.

Skelly Oil Co.'s No. 21 Schafer encountered the top of the pay from 3,060-3,105 feet. The total depth of this well was 3,140 feet from which an initial production of 50 bbls. of oil and 10 per cent water was made.

Gray County

McAuley and others' No. 3 Morse reached the top of the pay at 2,475 feet, and was drilled to a total depth of 2,583 feet. This well was shot with 250 quarts from 2,475-2,583 feet, and had an initial production of 225 bbls.

Empire Gas & Fuel Co.'s No. 1 Castleberry was completed with a total depth

(Continued on Page 105)

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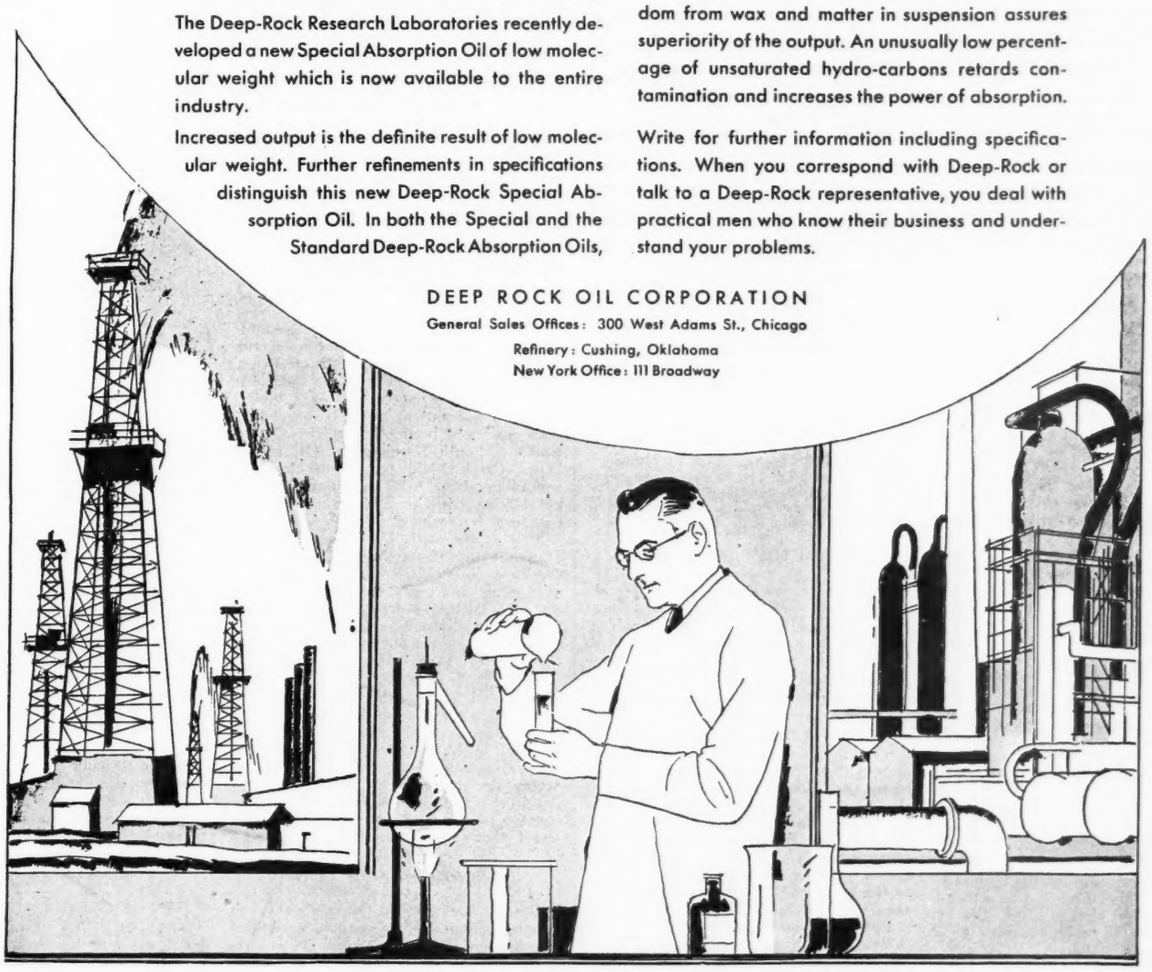

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Pipe Line Construction News

GENERAL HEARING ON TEXAS PIPE LINE LAW

AUSTIN, Tex., Apr. 28.—The new pipe line law will be put into operation by the Railroad Commission probably through the method of a general hearing, when producers, pipe line operators and all others will be heard on a proposed set of rules, R. D. Parker, chief oil and gas supervisor, said.

Considerable difficulty in administering the law was predicted by Mr. Parker, since no funds were provided for the purpose, after Governor Moody vetoed the appropriation of fees intended to be used to carry the law into effect. Governor Moody's veto said the law can be enforced with the present machinery of the Railroad Commission.

The set of regulations by which the new law can be operated may be extremely simple, or may be found necessarily extremely complex, Mr. Parker said. They have not yet been blocked out.

The law becomes effective June 19. The hearing on proposed rules cannot be held until after it is in effect, and apparently will not be in force for a short time afterward, Mr. Parker said.

An integration of the potential producing capacity of each lease into the capacity of pipe lines serving it was foreseen. Mr. Parker expressed belief that the production will be computed by leases, rather than by wells, since individual owners commonly store production of more than one well together.

Machinery will have to be set up for investigating complaints that pipe line companies are not taking production rateably from all producers, Mr. Parker said. He believed hearings will be held and testimony taken, much as in the case of complaints on other matters now and on applications for exceptions to the drilling regulations such as "rule 37" for the spacing of wells.

AMERICAN NATURAL GAS SURVEYS 72-MILE LINE

The American Natural Gas Corp. is surveying the right of way for a gas line from the Bald Hill Station, in eastern Okmulgee County, to the Quinton gas field, in Pittsburg County, Oklahoma, and the construction is scheduled to start this spring.

The Ozark Pipe Line Co., subsidiary of the American Natural Gas Corp., will operate the line, which will be about 72½ miles in length, 62½ miles of 16-inch and 10 miles of 8-inch. The line will take gas solely from properties of Mid-Western Oil & Gas Co. of Okmulgee, which has 12 producing wells with a total potential capacity of 140,000,000 feet and is drilling three more wells which will probably be completed soon. About 30 or 40 more gas wells will be drilled by the company.

PIPE LINE HEARING

SAN FRANCISCO, Calif., Apr. 26.—At a hearing before the State Railroad Commission on application of Pacific Gas & Electric Co. regarding agreement with Standard Oil Co. of California on construction of joint natural gas pipe line from Kettleman Hills to San Francisco Bay to be operated by Standard Pacific Pipe Line, Inc., Pacific Gas & Electric Co. stipulated that its half interest in the pipe line is to be regarded as a public utility.

Both Standard Oil Co. and its subsidiaries and Pacific Gas & Electric Co. agree to abide by rate for service of gas through the pipe line, as fixed by the Railroad Commission; but Standard Oil specifically stated that it does not propose to regard its investment in the line as a public utility.

SOUTHERN UNION GAS CO. STARTS NEW MEXICO LINE

DENVER, Colo., Apr. 28.—The Southern Union Gas Co. has started work on its pipe line from the Kutz Canon district in San Juan County, northwestern New Mexico, to Albuquerque, following approval of the franchise by the voters at a special election. Material is being received, surveyors are making the final locations and workmen have started building the roads which are necessary to distribute the pipe. The survey starts at Farmington and the line will cross the San Juan River over the Bloomfield bridge then via Cabezon to Albuquerque. The line from Kutz Canon to Cabezon will consist of 10-inch pipe and from Cabezon to Albuquerque will be 12-inch. An 8-inch line will be laid from the Ute Dome wells in northern San Juan County to Kutz Canon, so they may be tied in if necessary. Heavy tractors will be used on road construction. The Virginia-Mex Oil & Gas Co., which prepared petitions for an initiated ordinance granting it a franchise for Albuquerque, has withdrawn and will not ask for a special election.

TO LAY LINES IN PANHANDLE

FORT WORTH, Tex., Apr. 26.—The Mobeetie Gas Co., Fort Worth, Tex., has been organized to operate in the Texas Panhandle. F. J. McMillen and I. E. Horwitz of Fort Worth; Martin J. Jarrett and Thomas Cook, both of Amarillo, and William Horwitz of Butler, Pa., are directors of the company which is to engage principally in the transportation and sale of natural gas. Ten towns in the Panhandle are now served by the Public Service Corp. of Texas, a subsidiary of the Keystone Pipe & Supply Co. of Fort Worth, of which the Mobeetie company is a subsidiary. More work is to be done in the Panhandle in laying lines and supplying other towns with natural gas, and the company intends to expand gradually.

MO.-KANS. CO. PIPE LINE

CHICAGO, Apr. 26.—A $2,000,000 natural gas pipe line construction program has been inaugurated by Missouri-Kansas Pipe Line Co. to serve new markets in Kentucky and Indiana, Frank P. Parish, president, announced.

DISTRIBUTION FRANCHISES

Missouri-Kansas Pipe Line Co. has obtained franchises to distribute natural gas in two additional Indiana, one Kentucky and one Kansas town, Frank P. Parish, president, announced. These are Rockport and Troy, Ind.; Whitesville, Ky., and Lane, Kans.

PIPE LINES FOR IDAHO

According to authority recently granted by the Public Utilities Commission of the State of Idaho pipe lines will be constructed for the delivery of natural gas from the Wyoming fields to southeastern Idaho. This work must be completed within a reasonable time according to the order of the Public Utilities Commission.

OMAHA GAS LINE

OMAHA, Neb., Apr. 26.—Missouri Valley Natural Gas Co. has begun ditching both ways from Clifton, Kans., preparatory to laying a 24-inch natural gas pipe line from southwest Kansas to Omaha. The contract calls for completion of 300 miles of line by August 1.

CREOLE BUILDS PIPE LINE IN VENEZUELA FIELD

NEW YORK, Apr. 21.—Creole Petroleum Corp., Venezuelan producing subsidiary of the Standard Oil Co. of New Jersey, is completing construction work on its new shipping terminal at Caripito, where the company will load the production from its holdings in the Quiriquire Field.

The new terminal is located on the San Juan River, approximately 75 miles from the mouth of the river, which empties into the Gulf of Paria, opposite Port-of-Spain, Trinidad. Navigating conditions permit the passage of ocean-going tankers drawing 21 feet at high tide.

An 8-inch pipe line has been constructed from the field to Caripito, and the company will start running oil through the line about June 1. Steel tankage for 90,000 bbls. has been constructed at the terminal.

Creole has proved up approximately 1,500 acres of its extensive holdings in the Quiriquire Field, in the State of Monagas, Eastern Venezuela. There are now 12 producing wells on the property, which were brought in at depths ranging from 2,000 to 3,100 feet. These wells are rated at approximately 9,000 bbls. daily, in the aggregate, of 15.5 gravity oil.

The Creole pipe line runs for a distance of about 29 kilometers from the Quiriquire Field to the loading terminal at Caripito, and is constructed partly along the river and thence through the jungle to the field. The company has constructed a model camp at Quiriquire, whence it recently moved its headquarters staff from Maturin. Considerable road building has been accomplished by the company, eliminating the necessity for considerable jungle mule-back travel to Quiriquire.

FIFTH LINE COMPLETED TO DARST CREEK FIELD

SAN ANTONIO, Tex., Apr. 28.—Louisiana Oil Refining Co. has constructed a 6-inch pipe line from the Darst Creek Field to a loading rack on the Southern Pacific 10 miles north and is shipping its oil. The company recently purchased the leases and production of the United North & South Development Co. in the Darst Creek Field for a consideration averaging about $195 per barrel of the potential production. The company will run only its own oil.

This is the fifth line from the field. Magnolia Petroleum Co. has a line from the field to its tank farm and refinery at Luling and runs only its own production. Turman Oil Co. of Fort Worth has a line through which it runs only its own oil to a connection with the Grayburg Oil Co. pipe line.

The Texas Pipe Line Co. has a line through which it runs The Texas Company oil and also oil purchased from other leases and the Humble Pipe Line Co. has a line through which it runs the production of the Humble Oil & Refining Co. and also oil purchased from other leases. The 10,000 bbls. daily production of the field has been divided between these two lines.

COLORADO GAS LINE

Grand Junction, in Mesa County in western Colorado, has granted a natural gas franchise to the Fulton Petroleum Corp., of Seattle, by a vote of 938 to 33. The company will pipe gas from the Garmesa Dome, 26 miles northwest of Grand Junction and work on the project is to start at once. The project also includes the piping of gas to Fruita, Clifton and Palisade and ultimately to Delta, Olate and Montrose.

GAS DISTRIBUTION FOR OTHER SOUTHERN CITIES

A natural gas distribution system will be constructed in Leeds, Ala., and will be completed within 30 days, according to Edgar G. Hill, vice president and general manager of the Alabama Natural Gas Corp. The company gave a contract for the material, which includes 7 miles of cast iron pipe, to the National Cast Iron Pipe Co. Awarding of the contract to the Birmingham producer was in line with the announced policy of the Southern Natural Gas Corp., with which the Alabama Natural Gas Corp. is associated, to buy all materials possible in the district through which it operates.

The natural gas system for Leeds is the first of a series of plants to be constructed by the Alabama Natural Gas Corp. to whom has been given a certificate of convenience and necessity by the Alabama Public Service Commission for several cities in Alabama.

The plant will be modern in every detail and it is expected to prove a valuable asset to Leeds, which has no gas service at this time.

It was announced the Mississippi Natural Gas Corp., associate company of the Southern Natural Gas Corp., will begin construction this week of its distribution system in Starkville; and next week the Georgia Natural Gas Corp., another associated company will begin construction on its distribution system in Carrollton.

Construction of these plants will involve a substantial sum, taken from the appropriation announced by J. H. White, president, Southern Natural Gas Corp., as being part of the several million dollars to be expended in the three states through which the Southern Natural Gas Corp.'s interstate transmission systems traverse, during 1930.

OHIO RIVER CROSSINGS

CHICAGO, Apr. 26.—Missouri-Kansas Pipe Line Co. has completed construction of three 6-inch pipe lines under the Ohio River from Hawesville, Ky., to Cannelton and Tell City, Ind., Frank P. Parish, president, announced. Natural gas now will be distributed to these Indiana industrial communities by the Indiana-Kentucky Natural Gas Co., a Missouri-Kansas subsidiary. With the entrance into Indiana, Missouri-Kansas is operating in five states, Kansas, Missouri, Kentucky and Illinois being the other four.

WORK ON POWER PLANT

CASPER, Wyo., Apr. 26.—The Montana Dakota Power Co. has started work on the new power plant to be placed at Williston, N. Dak., which is to be an adjunct to the 12-inch natural gas pipe line that will be laid this summer from the Baker Glendive Field in Montana to Williston and serve that city and other towns and cities along the route. The Montana Dakota Power Co. is building a system over part of South Dakota, Montana and a large area in North Dakota to supply that territory with natural gas and electric power.

MAVERICK LINE UNDER WAY

SAN ANTONIO, Tex., Apr. 28.—Texas Gas Utilities Co., which is building a gas pipe line from the Rycade Oil Co.'s gas field in Maverick County to Del Rio and to the power plant of the Central Light & Power Co. on Devil's River, northwest of Del Rio, is not a subsidiary of the United Gas Co. but is a subsidiary of the Appalachian Corp. Construction of the line is now under way.

NUMEROUS DISAPPOINTMENTS IN EAST CENTRAL TEXAS DIVISION

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Apr. 28.—Shell Production Co.'s test in eastern Henderson County, on the Stephens farm, near the town of LaRue is not appearing very favorably for production at this writing, drilling at 3,305 feet in red and blue shale with no sign of oil. This has been one of the most interesting tests, and the "play" around it has been the hottest in the East Central Texas district for the past three months, royalty and lease prices reaching extremely high prices for surrounding acreage on the absolute wildcat area.

The Pecan Gap chalk ran high, the Austin chalk ran high and the Woodbine sand series was found high also, the test running higher than any in the district outside of the Van Pool, and appearing most favorable for production, but as in many other districts, tests which run high in this district may now be questioned as to their producing possibilities since this one is appearing so unfavorable. It topped the Austin chalk at 3,155 feet, and the Woodbine series at 3,174 feet, coring a dry sand from 3,219 to 3,232 feet.

T. B. Slick, Oklahoma operator, has been showing much activity in Texas during the last few weeks, buying considerable acreage and interests in Young County, and also half interests in the Adair-Daniels-Johnston's No. 1 Poirer test which is located 935 feet from the west line and 200 feet from the north line of the David-Wilson Survey, Smith County.

Cranfill & Reynolds' No. 1 C. S. Coker, in the William Daniels Survey, a short distance northeast of the Van Pool, Van Zandt County, has been abandoned at a total depth of 3,460 feet, limiting the Van Field in that direction. It topped the Austin chalk at 3,140 feet, and previously had topped the Pecan Gap at 1,840 feet. This test has been closely watched to see if the Van Pool would be extended in that direction and for such a distance.

W. B. Powell's No. 1 Bailer, on the Nacogdoches County School land, is another Van Zandt County test which joined the list of "dusters" this week, at a total depth of 3,505 feet in shale. Van Zandt County is gradually joining the list which has had many dry holes drilled in an effort to penetrate an oil pay horizon and discover another producing area.

Freestone County also marked up another wildcat failure this week when Penn and others' No. 1 Burger, in the Cesarios Chamar Survey was abandoned at a total depth of 4,003 feet. It topped the Austin chalk at 3,952 feet. This test is southeast of the town of Fairfield.

Late drilling reports from East Texas show the Big Indian Oil Co.'s No. 1 King in the William Barnhill Survey, Wood County, drilling at 2,210 feet; George Pace and others' No. 1 Dickey in the J. O. Clark Survey, same county, as drilling at 2,060 feet in shale.

Cranfill & Reynolds' No. 1 Broome, in the Samuel Chears Survey, Henderson County, was reported as coring at 4,445 feet in shale. It encountered the Eagleford shale from 4,430-43 feet, and struck a small showing of heavy black oil.

The Pure Oil Co. has planned the erection of a casinghead gasoline plant in the Van Pool, but details have not been announced as yet. A plant site is now being chosen, and material will soon be moved in on same.

The Pure Oil Co.'s No. 1 Peters on the edge of the Van Pool is reported to be making 75 per cent salt water. The same company completed No. 1 Ellison, and the well started off at 45 bbls. an hour through a half-inch choke. It got the top of the Woodbine at 2,863 feet and drilled to 2,942 feet.

EAST CENTRAL TEXAS

Boggy Creek	3,625
Cedar Creek	65
Currie	382
Hill County	45
Mexia	4,238
Minerva	470
Nigger Creek	190
Powell	5,845
Richland	240
Thrall	4
Van	19,455
Wortham	900
Total East Central Texas	35,49
Week ending April 19	34,706
Increa e	791

EAST CENTRAL TEXAS WILDCATS

Week Ended April 26

ANDERSON COUNTY

R. H. Keen's No. 1 Murdock, 800 ft. S and 175 ft. E of NW cor. Broomfield Sur. ..... S. D. 100 ft.

Sun Oil Co.'s No. 1 Bowers & Maier, 1,000 ft. NE of SW and 1,450 ft. NW of SE lines of 548-acre tract in E. G. Mayers Sur., 6 miles southwest of Palestine. .. Top Pecan Gap 1,120 ft.; drlg. 1,450 ft.; top Austin chalk 1,350 ft.

FREESTONE COUNTY

Killam & Phillips' No. 1 Killam, 150 ft. from N and 1,310 ft. E of 272½-ac. tract, A. Sanchez Sur. ..... Drlg. 1,434 ft.

HENDERSON COUNTY

H. B. Ashburn et al's No. 1 T. E. Barry, center of Barry's 59-acre tract in A. York Sur. ..... S. D. 1,830 ft.

Chapman's No. 1 Cade, 1,662 ft. from N and 3,294 ft. from W of J. B. Dorsey Sur. ..... S. D. 2,548 ft.

Cranfill-Reynolds & Louisiana's No. 1 A. J. Broome, 1,350 ft. S of N and 150 ft. E of W lines of easterly Broome Farm in Samuel Chears Sur. ..... Top Pecan Gap 2,695 ft., base 2,890 ft.; base Austin chalk 4,070 ft.; top Woodbine 4,226 ft.; drlg. 4,310 ft.

Shell's No. 1 Stephens, 760 ft. from S. 830 ft. from E lines I. D. Owens Sur., S. T. Stephens 118-ac. tract ..... Top Pecan Gap chalk 2,050 ft.; elevation 514 ft.; base Pecan Gap 2,130 ft.; top Austin chalk 2,916 ft.; base Austin chalk 3,155 ft.; top Woodbine series 3,174 ft.; cored sand 3,219-32 ft.; drlg. 3,276 ft.

KAUFMAN COUNTY

Sawill et al's No. 1 Ables, 1,200 ft. from SE. 1,000 ft. from SW or Ables' 233-acre tract, Elizabeth Ables Sur. ..... Drlg. 155 ft.

RAINS COUNTY

Owens & Sloan's No. 1 Hill, 150 ft. out of NW cor. of 150-ac. tract, T. McMahon Sur. ..... S. D. 200 ft.

SMITH COUNTY

Adair & Daniels' No. 1 Porier, 200 ft. S of S line of Wm. H. Malone Sur. and C of W half of S line of survey in David Wilson Sur. ..... Spudded.

Owen Sloan Oil Co.'s No. 1 Starnes, 846 ft. along W lines of John Waller Sur. from NE cor. of J. O. Dillard Sur. and 80 ft. E at right angles to W line of J. Waller Sur. ..... S. D. 1,322 ft.

Sutton et al's No. 1 W. D. Hammond, 150 ft. out of SW cor. W. D. Hammond tract in Jas. Reed Sur. ..... Base Pecan Gap 2,912 ft.; S. D. 3,005 ft.

VAN ZANDT COUNTY

L. R. Barton's No. 1 Wamble, 300 ft. from S and W of 100-ac. tract in Pleasant Young Sur. ..... Location.

Chapman et al's No. 1 Clarke, 150 ft. from N and W of 76-ac. tract, John Walling Sur. ..... Derrick.

Craft & Kelsey's No. 1 Euas, John Prade Sur., 150 ft. from E and 71 ft. at right angles to intersection of Sam Allen tract, north farm. ..... Derrick.

Cranfill & Reynolds' No. 1 Alexander, 150 ft. from S and W of 42-ac. tract, J. Burleson Sur., 1 mile S of Grand Saline ..... Drlg. 2,450 ft.

Cranfill & Reynolds' No. 1 Clark, 160 ft. from W and 52½ ft. from N of strip 101½ by 1,100 ft. off N end Clark's 24-ac. tract, J. Walling Sur., SE of discovery ..... Drlg. 675 ft.

T. Daniels' No. 1 Fannie Cumbine, 185 ft. S and 175 ft. E of NW cor. 156-acre tract John Wright Sur. ..... Spudded.

Dennis Oil Co.'s No. 1 C. W. Morris, 100 ft. from N and 300 ft. from E lines of Morris 160-acre tract in C. L. Morris Sur., 5 miles SE of Ben Wheeler. ..... Set 6⅝-in. csg.; T. D. 2,557 ft.

Hartt Oil Co.'s No. 1 Dr. L. M. Cox in A. C. Night Sur. 1,745 ft. N of S line and 524 ft. E of W line ..... Derrick.

Howard & Dooley's No. 1 Elliott 188-ac. tract in W. H. Bundy Sur. ..... Derrick.

Imperator Oil Co.'s No. 1 Canter, 150 ft. from N and W of Carter 171-ac. tract, W. M. Daniels Sur., NE of Van Pool ..... Derrick.

Pandem Oil Co.'s No. 1 Brinn & Gibbard in Ramon Sunigas Sur., NE of Grand Saline ..... Pecan Gap 2,850-2,975 ft.; S. D. 3,045 ft.

Priest et al's No. 1 Blewett, 175 ft. NW and SW of SE cor. of NW 84-ac. tract, E. Porter Sur. ..... Derrick.

Short et al's No. 1 B. C. Andrews, 330 ft. N and 160 ft. E of NE cor. of J. P. Farley 60-acre tract in Margaret Neil Sur. ..... Drlg. 2,400 ft.

Texas Chief Oil Co.'s No. 1 Foster, 600 ft. E of W line and 600 ft. N of S line of W. P. Foster's 151-acre tract in F. Montgomery Sur., 7 miles south of Canton. ..... Spudded and shut down.

Pure Oil Co.'s No. 1 Clarke, S offset to Cranfill & Reynolds' No. 1 Clarke ..... Location.

Pure-Humble's No. 1 L. V. Freeman, 250 ft. from E and 712 ft. from N line of 31.5-acre tract in John Walling Sur., one-half mile E of discovery. ..... T. D. 3,017 ft.; swabbed 97 per cent salt water; to plug back.

Shell Pet. Corp.'s No. 2 Fowler, Lease 302, 250 ft. N of S and 200 ft. E of W lines of Fowler 35.35-ac. tract ..... Set 7-in. csg. 2,460 ft.

Van Zandt Oil & Dev. Co.'s No. 1 Robinson, located NE cor. of Y'Barbo Sur., 4 miles E of Grand Saline. .... Top Pecan Gap chalk 2,764 ft., shut down 3,148 ft.

Pure Oil Co.'s No. 1 Ellison, 736 ft. E of W line 200 ft. S of N line of Ellison 67-acre tract ..... Coring 2,935 ft.

Pure Oil Co.'s No. 1 Clark-Houston, 120 ft. from N and W of No. 1 Wells ..... Set 7-in. csg. 2,686 ft.

Upchurch et al's No. 1 Owlet, 4 miles SW of pool, Green School House ..... Drlg. 1,530 ft.

Pure Oil Co.'s No. 3 Jarman, 657 ft. from S and 250 ft. from W of 134-ac. tract ..... Drlg. 570 ft.

Pure Oil Co.'s No. 4 Jarman, 825 ft. from E and 560 ft. from S of Jarman 134-ac. tract ..... Drlg. 1,690 ft.

Pure Oil Co.'s No. 1 Leanard, 777 ft. from S and 200 ft. from W of 47.5-ac. tract ..... Derrick.

Pure Oil Co.'s No. 3 Thompson, 270 ft. from N and 122 ft. from E of 50.75-ac. tract offsetting No. 1 Fowler ..... Drlg. 2,125 ft.

Pure Oil Co.'s No. 1 Tunell, 120 ft. from S. 1,109 ft. from W of 4.23-ac. tract, M. Gross Sur. ..... Set 10-in. csg. 297 ft.

Pure Oil Co.'s No. 2 Tunnell, 575 ft. from S and 105 ft. from E of 4.23-ac. tract ..... Set 7-in. csg. 2,560 ft.

Pure Oil Co.'s No. 2 Wells, 250 ft. out of most easterly NE cor. 41.5-ac. tract ..... Drlg. 895 ft.

WOOD COUNTY

Big Indian Oil Co.'s No. 1 R. J. King, 450 ft. W of E line and 150 ft. N of S line of King's 109-acre tract in Wm. Barnhill Sur. ..... Drlg. 1,975 ft.

Pace et al's No. 1 Dickey, 1,200 ft. from E and 300 ft. from S of Dickey 120-ac. tract, J. O. Clark Sur. .... Drlg. 1,390 ft.

West Texas Royalty Co.'s No. 1 Negro Orphanage, 250 ft. N and W of SE cor. of 100-acre tract in C. E. Rivers Sur., 1 mile south of Mineola. ..... S. O. 1,847 ft., in Navarro; top Pecan Gap 3,043 ft.; top Navarro 1,800 ft.; show oil 1,840 ft.; drlg. 3,450 ft.; base Pecan Gap 3,320 ft.

Gulf Prod. Co.'s No. 1 N. F. Carver, 300 ft. out of NE cor. of N. F. Carver 60-acre tract in William Kerns Sur. ..... S. D. 5,430 ft.

NATIONAL OIL SCOUTS TO MEET AT SAN ANTONIO

SAN ANTONIO, Tex., Apr. 28.—The National Oil Scouts Association of America will meet in San Antonio May 19 with headquarters at the Gunter Hotel and the expectation is that about 1,000 scouts will attend. Scouts in San Antonio recently formed an organization with D. C. DeWitt of the Simms Oil Co. as president and this association is looking after the local end of the arrangements.

Lloyd S. McGee, of the Humble Oil & Refining Co., is chairman of the committee of the local association which will give a dinner and dance at the Gunter Hotel Friday, May 2. Mrs. J. V. Adams is in charge of the entertainment of the visiting women. Other chairmen of local committees selected by Mr. McGee are: Finance, Frank B. Lefevre; advertising, George Coates; new members, L. F. McCollum; entertainment, E. W. Owen; dance, Tommy Thompson; golf, Don Danvers; rooms and registration, J. E. Beall; barbecue, Tom H. Terry.

Officers of the national association are: President, Ford Turner, of the Pure Oil Co. of San Angelo; secretary and treasurer, E. B. Dilley; and first vice president, William C. Leisk.

GULF COAST MARKETS REPORTS STRENGTHENING

HOUSTON, Tex., Apr. 28.—The strength which has been felt in the Gulf Coast pale and red oil and fuel oil markets for several weeks gave no indication of slackening at the opening of this week but on the other hand certain viscosities, principally the heavier oils were quoted around a quarter cent higher by some sources.

All sellers are finding a steady movement for nearly all their oils at this time with an increasing demand in the heavier viscosities due to seasonal requirements.

Fuel oils continued virtually nominal in price with very little material available for the open market. The continued diversion of fuel from the open market to cracking use apparently is the controlling factor in the situation as sellers in the past two months have reduced stocks to a low point with no great amount of material moving on the open market.

Gasolines remained unchanged in price although the situation at the opening of the week was uncertain. The general market, however, continued in line with the North Texas market with freight differentials.

OKLAHOMA FIELDS

(Continued from Page 42)

3,285 feet, where it was making 150 bbls. a day, to 3,307-16 feet. The well started to produce 100 bbls. an hour and then settled to 1,165 bbls. on the gauge of April 24. The gas was estimated at 5,000,000 feet. The well and acreage was formerly owned by the Louisiana Oil & Refining Co. but was sold to the Ramsey Petroleum Co. in a recent transaction. Later the Mid-Kansas purchased a half interest in all the Ramsey Petroleum Co. properties.

In the Palacine area, the Wirt Franklin Petroleum Corp.'s No. 3 Spain, SE cor. SW NW, Section 9-2s-6w, Stephens County, has resumed drilling after testing dry sand at 3,240-46 feet. Dunmar Oil Co. is running a tester on its No. 1 Monroe-Harris, NE cor. NW NW, Section 15-2s-6w, to make a production test at a total depth of 2,883 feet, where a showing of oil and gas was encountered.

Kanaco Oil Co. has resumed drilling on its test near the Healdton Pool, in Carter County. The test is No. 1 Coffey, NE cor. SE NW, Section 25-4s-3w, on the south edge of the Healdton Pool. A showing of oil was encountered at 1,930 feet, and the casing was cemented. The test also had showings of oil at 1,856-76 feet, and another at 1,903-13 feet. Campen-Lasater's No. 1 Anderson, SE cor. NE SE, Section 32-4s-2w, a wildcat expects to continue drilling after completing a fishing job at a total depth of 2,590 feet, where a showing of oil and gas was found. The fishing job developed when the rotary drill pipe twisted off in the hole.

Shallow Madill Field

Producing wells and drilling operations continue to be reported from the Madill district in Marshall County. F. W. Merrick and others' No. 15 Null, NW cor., Section 24-5s-5, was put on the pump and made 200 bbls. of oil. Bilbo Oil Co.'s No. 4 Null, C W half SW NE NW, Section 24-5s-5, was put on the pump and made 110 bbls. from sand at 581-629 feet and 652-73 feet. The Goddard Co.'s No. 2 Marshall, NE cor. SW, Section 30-5s-6, has a showing of oil in the top of the sand at 647 feet. The test is located on the southeast edge of the Madill district. Westheimer & Daube's No. 3 Sullivan-Davidson, NE cor. SE NW, Section 30-5s-6, was drilling cement plugs at a total depth of 622 feet. The sand was found at that depth where a showing of oil was encountered.

Testing Cotton County

The wildcat test of the Empire Oil & Refining Co. in Cotton County, was drilling at 4,050 feet. The test is No. 1 Chambers, NW cor. SE, Section 8-3s-9w, about 3 miles east and 2 miles north of Temple, in Cotton County. The test is expected to be drilled to a total depth of 5,000 feet, or to the Silicious lime.

Muskogee County has become an active shallow area. The pool that has caused the widespread drilling campaign within the last few weeks is only a few miles north of Muskogee and about a half mile south of the Arkansas River. That has for several years been a gas area, with only a small portion developed. Most of the gas wells were drilled to less than 800 feet. Of those that were drilled deeper only a few had showings of oil. The discovery gas well was drilled about three years ago and the first oil well was drilled two months ago. Since then some of the older gas wells have been drilled deeper and have been completed for wells from 100 bbls. to 300 bbls. The play has spread to an area 2 miles wide and 6 miles long, on which there are 20 operations. So far only two dry holes have been found near the center of the pool, and both offset producing wells. The earlier completed wells in the pool have not materially decreased in production from the initial output. The oil is found in the regular Muskogee sand at approximately 1,050 feet.

Oklahoma City's Shut-in Production

The initial shut-in production in the Oklahoma City Pool that has been allowed to produce for 24 hours or less as of April 26, was 354,470 bbls. The initial production of the well and the approximate date each will be opened follows:

Company, lease—	Well No.	Bbls.	Date
I. T. I. O.:			
Watters	*3	2,204	.....
Trosper	5	167	4-30-30
L. Canfield	2	[1]1,374	5- 2-30
N. Emerson	*3	[2]3,545	5- 2-30
S. Bodine	3	[3]801	5- 3-30
Thomas Fuzzell	3	[4]3,524	5- 3-30
A. Bodine	6	3,612	5- 4-30
Canfield-Button	2	2,686	5- 4-30
Barker-Drake	*1	[5]2,589	5- 4-30
Unsell-Krager	*1	3,007	5- 9-30
Theimer	*1	[6]5,558	5-10-30
C. Brokaw	2	[7]563	5-10-30
Jones	*4	[8]1,954	5-18-30
Butterfield	*1	[9]3,264	5-17-30
Pasadena-Heights	*1	[10]5,982	5-16-30
Jones Community	*1	[11]4,944	5-12-30
Jones	*4	[12]1,594	5-18-30
Fortson-Farley	3	[13]5,272	5-20-30
N. Emerson	*3	42,204	5-19-30
E. Fortson	2	[14]3,364	5-19-30
L. Farley	1	[15]19,833	5-21-30
A. Bodine	7	[16]609	5-23-30
Wilke-Anderson	*1	381	6- 1-30
Sudik	*1	[17]30,000	.....
L. Farley	3	[18]932	5- 5-30
Unsell-Krager	*3	[19]4,804	6- 9-30
M. Fuzzell	2	[20]1,673	6- 9-30
M. Sudik	*2	[21]1,939	6-14-30
M. Unsell	*1	[22]3,199	6-12-30
L. Jones	*6	[23]5,092	6-17-30
Ferndale	*1	[24]4,933	6-19-30
M. Knox	*1	[25]4,052	6-17-30
Werner-Farley	*2	[26]960	6-20-30
W. Canfield	*2	[27]166	6-20-30
Jones	*5	5,200	6-29-30
W. Franklin:			
Lowery	*6	[28]6,339	5-19-30
Lowery	*7	[29]1,335	5-11-30
Theimer	*1	[30]7,896	5-17-30
Eacock	*1	[31]6,838	6- 1-30
Lowery	*5	[32]5,599	6-13-30
Hoopes	*4	6,396	6-12-30
Cromwell:			
Trosper Park	*4	42,975	5-10-30
Trosper Park	*10	[33]9,015	5-21-30
Sinclair:			
Vincl	*2	[34]3,310	5-14-30
Vincl	*1	14,005	5-17-30
School land 54	*2	[35]5,235	5-21-30
Sinclair et al:			
Kinter	*3	[36]505	5-12-30
Kinter	*4	[37]5,000	5-19-30
Kinter	*5	255	5-28-30
Kinter	*7	[38]630	5-29-30
Coline:			
Olds	*5	[39]3,467	5-16-30
Warren	4	[40]1,622	5-13-30
Warren	7	[41]5,000	6- 1-30
Clauer	*2	5,130	5-23-30
Olds	*9	[42]1,169	6- 7-30
Olds	*7	[43]819	6- 8-30
Slick:			
Hoopes	*1	[44]1,064	5-17-30
Hoopes	*2	[45]6,758	5-20-30
Shell:			
Petty	*2	[46]260	5-13-30
Heenan & Coe:			
Cunningham	*1	[47]6,904	5-30-30
Skelly:			
Hoopes	*3	[48]322	6- 4-30
L. Jones	*3	[49]5,092	6-14-30
Dunn	*1	19,580	6-28-30
Hoopes	*2	[50]1,846	6-30-30
Mid-Kansas:			
Mollman	*2	2,492	6- 5-30
Tom Slick Oil Co.:			
Bailey	*1	16,758	6-27-30
Houghton	*1	[51]8,873	6-27-30
Total	67	354,470	

*Wells producing from the Simpson sand. All others are producing from the Arbuckle lime.

[1]Estimated. [2]Thirteen hours. [3]Three and one-half hours. [4]Twelve hours. [5]Five hours. [6]Two and three-quarters hours. [7]Nineteen and one-half hours. [8]One hour. [9]Twenty hours. [10]Twenty-one hours. [11]Nineteen hours. [12]Twenty-two hours. [13]Eight and one-half hours. [14]One and one-quarter hours. [15]Six and one-third hours. [16]Eighteen and one-quarter hours. [17]Sixteen hours. [18]Three hours. [19]Thirty-five minutes.

These notations indicate the number of hours the wells produced on their initial production test.

Actual Field Production

The actual production from the Oklahoma City Pool for the seven days ending April 28, was as follows:

	Bbls.	Wells prod.	Wells completed
April 22	113,070	41	200
April 23	146,795	50	202
April 24	87,511	33	203
April 25	100,424	55	203
April 26	132,575	47	204
April 27	85,899	37	208
April 28	98,637	38	208

Oklahoma City Shipments

The daily average pipe line and tank car shipments from the Oklahoma City Pool averaged 102,235 bbls. for the week ending April 23. The total shipments and daily average for the week by companies were as follows:

Company—	Bbls.	Daily av.
Empire	138,471	19,782
I.T.I.O.	71,548	10,221
Magnolia	100,060	14,294
Oklahoma	106,764	15,252
Shell	7,919	1,131
Sinclair	98,901	14,129
Prairie	130,496	18,642
Tidal	61,487	8,784
Total	715,646	102,235

A small decline in Greater Seminole production occurred for the week ending April 23, when it shows a total 299,358 bbls. a decrease of 2,854 bbls. The Seminole area averaged 219,754 bbls. from 1,848 wells. The daily average gauges for the different pools for the same seven days were as follows:

Pool—	Wells	Bbls.
Little River	368	38,851
East Little River	69	19,561
Carr City	58	8,727
Maud	137	5,591
Mission	104	12,627
Bowlegs	282	20,225
Earlsboro	298	40,013
East Earlsboro	146	39,529
Seminole	266	19,895
East Seminole	33	3,754
Searight	87	10,981
Allen	258	19,159
Asher	26	2,066
Konawa	39	7,889
St. Louis	483	36,838
Sasakwa	53	13,652
Total	2,707	299,358

Seminole Oil Shipments

For the seven days ending April 23, the daily pipe line and tank car shipments were 215,868 bbls. from the Seminole Field. The production exceeds the shipments by approximately 4,000 bbls. daily. The shipments by companies were as follows:

Company—	Bbls.
Barnsdall	2,478
Champlin	2,709
Continental	1,229
Consolidated	435
Cosden	5,736
Empire	2,447
Gypsy	27,678
Magnolia	12,764
Oklahoma	29,538
Prairie	25,378
Prod. & Refiners	2,092
Pure	5,231
Deep Rock	3,014
Shell	14,167
Sinclair	47,560
Texas	11,966
Tidal	12,332
White Oak	2,420
Total	209,117
Tank cars	6,751
Grand total	215,868

Caddo County

Abernathy & Brown moved a spudder in for No. 2 Horton, C SE SE, Section 8-6-13w. No. 1 Horton, SE cor., Section 8-6-13w, has been abandoned at 596 feet. Magnolia Petroleum Co.'s No. 7 Niles, NE cor. SE NW, Section 36-6-10w, is pumping 27 bbls. from sand 3,187-3,200 feet.

Carter County

Magnolia Petroleum Co.'s No. 5 Hightower, SE cor. SW NE, Section 30-1s-3w, has been completed for 60 bbls. in sand 2,887-2,903 feet.

Cotton County

Barnsdall Oil Co. made location for No. 7 Lawler, SW cor. SE SW NE, Section 33-1s-10w. Harris & McNeal's No. 1 McCombs, SW cor. NE SW, Section 35-1s-10w, is rigging up. Baldwin & Sultan's No. 3 Patterson, SE cor. NW NW, Section 1-2s-10w, is drilling at 1,350 feet. Shasta Oil Co.'s No. 9 Patterson, SW cor. NE NW, Section 1-2s-10w, is drilling at 1,825 feet. No. 10 Patterson, NE cor. SW NW, Section 1-2s-10w, is drilling at 1,325 feet. No. 3 Watkins, SW cor. NW NE SW, Section 1-2s-10w, is waiting for cement to set at 2,210 feet. Perkins & Cullum's No. 2 Chambers, CNL SW SW, Section 1-2s-10w, is a rig being built. No. 2 E. Chambers, CNL S half NW SW, Section 1-2s-10w, has sand 2,200-02 feet and is drilling plugs. No. 3 E. Chambers, NE cor. SE NW SW, Section 1-2s-10w, is drilling at 50 feet. Harris & McNeal's No. 4 Chambers, SW cor. NW NW SW, Section 1-2s-10w, swabbed 100 bbls. from sand 2,187-2,206 feet. No. 5 Chambers, CSL N half NW SW, Section 1-2s-10w, is a location. No. 6 Chambers, SE cor. NE NW SW, Section 1-2s-10w, is drilling at 935 feet. Shasta Oil Co.'s No. 2 Burneaugh, SE cor. NE SE, Section 2-2s-10w, is drilling at 2,190 feet. No. 5 Cobb, NE cor. SE NE, Section 2-2s-10w, has cemented 6-inch casing at 2,174 feet. No. 13 Slogan, SE cor. NE NE, Section 2-2s-10w, has sand 2,179-81 feet and is drilling plug. L. Loper's No. 1 Grimes, C SE NE, Section 21-1s-10w, is dry and abandoned at 2,515 feet. Barnsdall Oil Co.'s No. 6 Lawler, NW cor. NE NW SE, Section 33-1s-10w, is pumping 10 bbls. from sand 2,249-67 feet. Baldwin & Sultan's No. 7 Rhone, SE cor., Section 35-1s-10w, is pumping 20 bbls. from sand 2,170-80 feet. J. B. Nantz's No. 1 Mah-Bah-Quak, SW cor. NW, Section 29-1s-9w, has been completed for 3,000,000 feet of gas in sand 2,163-65 feet. Baldwin & Sultan's No. 1 Patterson, SW cor. NW NW, Section 1-2s-10w, made a 75-bbl. well in sand 2,181-2,203 feet. No. 2 Patterson, CSL NW NW, Section 1-2s-10w, is swabbing 150 bbls. from sand 2,188-2,208 feet. Shasta Oil Co.'s No. 5 Patterson, SE cor. SW NW, Section 1-2s-10w, is pumping 30 bbls. from broken sand 2,187-2,222 feet. No. 6 Patterson, SW cor. SE NW, Section 1-2s-10w, made 250 bbls. from sand 2,192-2,209 feet. No. 7 Patterson, NW cor. SW NW, Secton 1-2s-10w, swabbed 400 bbls. from sand 2,172-82 feet. No. 8 Patterson, CNL SW NW, Section 1-2s-10w, has been completed for 125 bbls. in sand 2,187-2,208 feet. No. 1 E. Chambers, NW cor. SW NW SW, Section 1-2s-10w, is swabbing 200 bbls. from sand 2,204-25 feet. Harris & McNeal's No. 3 hambers, NE cor. NW SW, Section 1-2s-10w, has been completed for 350 bbls. in sand 2,166-72 feet. Shasta Oil Co.'s No. 2 Watkins, NW cor. NE SW, Section 1-2s-10w, is swabbing 150 bbls. from sand 2,181-93 feet. No. 5 Burneaugh, SE cor. NE NE SE, Section 2-2s-10w, is making 150 bbls. from sand 2,194-2,204 feet. No. 4 Cobb, SE cor. NE, Section 2-2s-10w, is flowing 75 bbls. from sand 2,150-62 feet. Shasta Oil Co.'s No. 12 Slogan, NE cor., Section 2-2s-10w, has been completed for 25 bbls. in sand 2,183-98 feet.

Creek County

A. A. Bailey and others' No. 1 Foster, NW cor. NE, Section 19-19-9, is cleaning out to deepen from 2,563 feet. O. M. Irelan and others' No. 1 Bible, NE cor. SW, Section 20-19-9, is drilling at 720 feet. Phillips Petroleum Co. and Gled Oil Co.'s No. 6 Koch, SW cor. SE NE, Section 20-19-9, is drilling at 1,000 feet. Jackson & Wise Oil Co. moved a machine in for No. 1 Halsey, NE cor. SE SE, Section 28-19-9. Riverland Oil Co. and F. Billingslea's No. 1 B. Fife, SW cor. SE NW, Section 24-17-8, is a machine. Pioneer Petroleum Co.'s No. 3 Lewis, SW cor. NW, Section 19-17-11, is rigging up. Curtis Oil Co. and Margay Oil Co.'s rig is up for No. 1 Mooney, SW cor. NE, Section 27-16-10. E. A. Hill and others' No. 1-A McIntosh, NW cor. SW NE, Section 29-15-10, is spudding. Gibson & Metz's No. 1-A Hendon, CEL NE NW, Section 31-17-7, has been abandoned at 3,022 feet. Central Commercial Oil Co.'s No. 3 Hay, SW cor. NW SW, Section 10-17-10, made a 10-bbl. well in Wilcox sand 2,904-33 feet. O. M. Irelan and others' No. 1 McNac, SW cor. NE, Section 10-17-10, has been abandoned at 2,956 feet. Deep Rock Oil Corp.'s No. 1 Hay, NW cor. SW SW, Section 10-17-10, made a 72-bbl. well in Wilcox sand 2,930-61 feet. Mays Drilling Co.'s No. 1-A Brown, NE cor., Section 20-17-10, is dry and abandoned at 2,200 feet. Riverland Oil Co. and F. Billingslea's No. 1-A Swaveland, C NE, Section 33-17-12, is a dry hole at 2,386 feet.

Jefferson County

Sutherland Oil Co. is erecting the rig for No. 2 Riverbed, NW cor. NE NE, Section 10-7s-5w. Simpson & Fell's No. 1 Wilbur Seay, SW cor. NW NE NE, Section 3-7s-5w, has been abandoned at 1,702 feet.

Hughes County

The Prairie Oil & Gas Co.'s No. 1 Hensley, NE cor. NW NE, Section 32-8-9, has been completed for 40 bbls. in sand 3,589-96 feet.

Kay County

Empire Oil & Refining Co.'s No. 1 Maple, SW cor., Section 20-27-4, is dry and abandoned at 3,660 feet.

Kiowa County

Parker and others' No. 6 Fuqua, SW cor. NE, Section 18-6-16w, is drilling at 441 feet with a show of gas. No. 5 Fuqua, NW cor. SW SW NE, Section 18-6-16w, is pumping 10 bbls. from sand 423-53 feet.

Lincoln County

The Prairie Oil & Gas Co. is building the rig for No. 3 Norton, SW cor. NE.

Section 7-14-4, Chandler Pool. A rig is being built to deepen No. 2 Norton, NW cor. SW NE, Section 7-14-4. Magnolia Petroleum Co.'s No. 2 Benedict, NE cor. SE NW, Section 7-14-4, has been completed for 3,485 bbls. in sand 5,071-77 feet.

Marshall County

J. H. Hudson and others' No. 1 Alice Wilson, SW cor. SE NW NW, Section 10-5s-5, is drilling at 90 feet.

Muskogee County

D. L. T. Oil Co. and others moved a machine in for No. 4 L. Mackey, NE cor. NW SE SW, Section 9-15-18. J. M. Foltz' No. 2 Spauding, SE cor. NW NE SW, Section 9-15-18, is a machine. H. L. Jolly has a machine in for No. 6 T. Carlina, NW cor. SW, Section 9-15-18. R. Swift and others' No. 1 Harris, NW cor. SE NW NW, Section 14-15-18, is drilling at 250 feet. Decius & Garrett's No. 1 M. Kernal, NE cor. NW NW, Section 32-14-16, is drilling at 350 feet. R. F. Ray and others' No. 1 Foreman, SW cor. SE, Section 14-13-18, is spudding. H. L. Jolly's No. 1 Spaulding, SE cor. NE, Section 8-15-18, has been completed for 115 bbls. in sand 817-29 feet. D. L. T. Oil Co. and others' No. 3 L. Mackey, SE cor. NW SW, Section 9-15-18, made 50 bbls. in sand 1,018-31 feet. J. L. Haner's No. 4 M. Stedham, NE cor. NW SW SW, Section 9-15-18, is dry and abandoned at 1,067 feet. Western Drilling & Equipment Co.'s No. 2 L. Fields, SW cor. NE NE SW, Section 9-15-18, has been completed for 320 bbls. in sand 982-93 feet. Ray and others' No. 3 F. Foreman, NW cor. NE SW SE, Section 15-13-18, has been completed for 100,000 feet of gas in sand 580-92 feet.

Okfuskee County

Champlin Oil & Refining Co. has the rig up for No. 11 Holmes, CEL NE NW, Section 22-11-11. Suppes & E. L. Robinson's No. 2 Severs, SW cor. SE, Section 35-11-9, has been completed for 20 bbls. in sand 1,483-92 feet. Champlin Oil & Refining Co.'s No. 5 Ingram, NE cor. SW SW, Section 14-11-11, has been abandoned at 2,809 feet. Moffett and others' No. 1-A Wilson, NE cor. SW NE, Section 26-11-11, has been completed for 10 bbls. in sands 2,010-23 feet and 2,420-28 feet. Burr-Mack Oil Co.'s No. 1-A W. Dindy, SE cor. NE NW, Section 31-11-11, has been completed for 12,000,000 feet of gas in sand 3,068-72 feet.

Okmulgee County

C. Peterson's No. 3 E. Ware, C NW SW, Section 9-15-14, is preparing to deepen from 1,828 feet. McBrayer and others' No. 1 D. Tucker, SE cor. SW NW, Section 9-15-14, is a machine. Eagle Picher Oil Co.'s No. 1 Marshall, SE cor. SW SE, Section 27-12-12, is rigging up to deepen from 2,487 feet. Mitchell Oil Co.'s No. 11 Randall, NW cor. NE, Section 30-12-12, is rigging up to deepen from 1,668 feet. C. Peterson's No. 4 E. Ware, NE cor. NW SW, Section 9-15-14, has been deepened to sand 1,832-52 feet and completed for 6,000,000 feet of gas. J. E. Wallace's No. 14 V. Colbert, NE cor. SW NE, Section 14-14-14, has been completed for 6 bbls. in sand 1,080-90 feet. Troutt Drilling Co.'s No. 7 N. Doyle, CSL NW NW, Section 28-13-14, is a 12-bbl. well in sands 1,908-15 feet and 1,938-54 feet. J. M. Smith and others' No. 1-A Chapman, NW cor. SW NE, Section 16-12-12, made 35 bbls. in sand 1,535-56 feet. W. C. Newman's No. 1-A Replogle, SW cor. SE, Section 19-12-12, has been completed for 20 bbls. in sand 1,604-64 feet.

Pontotoc County

Brydria Oil Co.'s No. 1 Burke, SE cor., Section 32-5-5, is drilling at 1,830 feet. Sinclair Oil & Gas Co.'s No. 1 M. Gordon, SW cor. NE, Section 21-5-5, has been completed for 50 bbls. in sand 1,830-39 feet.

Seminole County

Lippa Drilling Co. has the rig up for No. 1 Bruner, NW cor. NE NW, Section 31-10-6, Earlsboro area. Amerada Petroleum Corp. has the cellar dug for No. 5 Edwards, SW cor. NE NE, Section 22-9-5, South Earlsboro Field. Eason Oil Co. is building the rig for No. 2 Anderson, SE cor. NW NE, Section 22-9-5. Amerada Oil Corp. and others made location for No. 5 Grounds, SE cor. NW NW, Section 23-9-5. Magnolia Petroleum Co. has the rig up for No. 3 Grounds, SW cor. NE NW, Section 23-9-5. W. B. Pine has the cellar dug for No. 1 Johnson, NE cor. NW SE, Section 17-6-6, Konawa Pool. Hilton Phillips and others' No. 1 Chupco, SE cor. NW SE, Section 20-6-6, is a rig on the ground. Papoose Oil Co.'s No. 2 Marks, NW cor. SE NW, Section 32-10-6, Earlsboro Field, has been completed for 515 bbls. in sand 3,860-77 feet. Amerada Petroleum Corp. and others' No. 2 Grounds, NW cor., Section 23-9-5, made 5,340 bbls. in Wilcox sand 4,205-10 feet. No. 1 Stidham, NW cor. SW SW, Section 23-9-5, is dry and abandoned at 4,402 feet. Amerada Petroleum Corp. and Dixie Oil Co.'s No. 2 Scott, NE cor. NW SW, Section 19-9-6, Konawa Pool, has been completed for 1,850 bbls. in Wilcox sand 4,111-42 feet. Tidal Oil Co. and Interocean Oil Co.'s No. 3 Lasley, NW cor. SW SE, Section 19-6-6, swabbed 450 bbls. from Wilcox sand 4,163-83 feet. The Prairie Oil & Gas Co.'s No. 1 Fleet, SW cor. NW NW, Section 21-6-6, is a dry hole at 3,137 feet. No. 1 Grounds, NW cor. NE, Section 23-9-5, has been completed for 85 bbls. in Wilcox sand 4,212-19 feet. The Prairie Oil & Gas Co. and T. B. Slick's No. 1 Anders, NW cor., Section 23-6-6, is dry and abandoned at 4,025 feet. Gypsy Oil Co.'s No. 9 Barkus, NW cor. SW SW, Section 6-8-6, Mission Pool, is dry and abandoned at 6,203 feet in Arbuckle lime topped at 4,980 feet. No. 1 Barkus, SE cor. SW NW, Section 7-8-6, has been abandoned at 4,617 feet. Gypsy Oil Co.'s No. 3 Barkus, NE cor. SW NW, Section 7-8-6, is dry and abandoned at 4,365 feet. No. 4 Barkus, NW cor. SW NW, Section 7-8-6, is dry and abandoned at 4,388 feet. Indian Territory Illuminating Oil Co.'s No. 1 Johnson, NW cor. SE NE, Section 24-7-6, Little River Pool, has been completed for 4,500,000 feet of gas in sand 3,047-57 feet after drilling to 4,146 feet in Wilcox sand and plugging back to 3,177 feet. Reynolds Drilling Co.'s No. 1 Decker, NW cor. SE NE, Section 16-6-6, is dry and abandoned at 3,295 feet. The Texas Company's No. 2 Atkinson, SW cor. NW NE, Section 17-6-6, swabbed 105 bbls. in sand 2,881-99 feet. No. 3 Atkinson, NW cor. SW NE, Section 17-6-6, has been completed for 90 bbls. in sand 2,874-79 feet. No. 4 Atkinson, SE cor. NW NE, Section 17-6-6, flowed 190 bbls. in sand 2,888-2,921 feet. Hilton Phillips and others' No. 2 Hyde, NE cor. SE NE, Section 20-6-6, is dry and abandoned at 3,050 feet.

Tulsa County

Brooks Drilling Co.'s No. 5 Brown, SE cor. NW SW, Section 29-19-12, is drilling at 1,500 feet. Donahoe and others' No. 1-A Thompson-Cowan, SW cor. NW SW, Section 7-19-14, is drilling at 325 feet. J. L. Donahoe and others' No. 1 Donahoe, SE cor., Section 12-19-13, has been abandoned at 1,377 feet. F. D. Misener and others' No. 1 Haggarty, SE cor. NE NE, Section 31-16-14, has been completed for 3,500,000 feet of gas in sand 1,760-66 feet.

Stephens County

Pace and others' No. 6 Bristowe, NE cor. NW NW SE, Section 18-2s-7w, is waiting for cement to set at 1,862 feet, total depth 1,872 feet. No. 5 Watkins, SW cor. NE NW SE, Section 21-2s-7w, is rigging up rotary. Pandem Oil Corp.'s No. 1 Peilsticker, SE cor. NE SE, Section 5-2s-8w, has been abandoned at 2,808 feet. Wirt Franklin Petroleum Corp.'s No. 1 First National Bank of Duncan, NW cor. NE NW, Section 8-2s-6w, is a dry hole at 4,000 feet.

Wagoner County

North and others moved a machine in for No. 2 W. Kanard, NE cor. SE SE, Section 31-18-17. C. D. Bradley and others' No. 1 Perryman, CNL NE NE, Section 8-15-17, is a machine. Keener Oil & Gas Co.'s No. 1 Sequoyah, NE cor., Section 4-18-19, is dry and abandoned at 791 feet.

Cleveland County

Continental Oil Co. has the cellar dug for No. 3 Sudik, NE cor., Section 6-10-2w, Oklahoma City Field. Location has been made for No. 4 Sudik, NW cor. NE NE, Section 6-10-2w. The Prairie Oil & Gas Co.'s No. 1 Sudik, NW cor., Section 5-10-2w, is a rig.

Osage County

Utilities Production Co.'s No. 21, SW cor. NW, Section 6-26-7, is drilling at 1,200. Indian Territory Illuminating Oil Co. made location for No. 409, NE cor. SE, Section 6-24-9. Oliphant and The Texas Company's No. 1, NW cor. SE SE, Section 13-23-7, is a rig under construction. Indian Territory Illuminating Oil Co.'s No. 428, NE cor. SE SE, Section 1-23-8, is rigging up. Barnsdall Oil Co. and Branstetter's No. 1, SE cor. NE, Section 22-22-11, is rigging up. Oklahoma Natural Gas Co. moved a machine in for No. 1,780, CNL S half N half NW, Section 34-21-11. Stephenson and others' No. 1, NE cor. SW, Section 14-26-8, is dry and abandoned at 2,380 feet. Oklahoma Natural Gas Corp.'s No. 1,756, SE cor. NE, Section 31-21-11, is a dry hole at 2,510 feet.

Oklahoma County

Wirt Franklin Petroleum Corp. has the rig on the ground for No. 1 Page, SE cor., Section 35-12-3w, Oklahoma City Pool. R. O. Haulbelt's No. 1, SE cor. NW NW, Section 2-11-3w, Reno Avenue Addition, is a cellar. Gwin Drilling Co. has the cellar dug for No. 1 Burss, NW cor. SW SW, Section 2-11-3w. Wirt Franklin Petroleum Corp.'s cellar is dug for No. 7 Theimer, SW cor. SE, Section 2-11-3w. No. 8 Theimer, SE cor. NE SE, Section 2-11-3w, is also a cellar. The cellar has been dug for No. 9 Theimer, NW cor. SW SE, Section 2-11-3w. No. 1 Holder is a cellar, SW cor. SE SE SW, Section 2-11-3w. Indian Territory Illuminating Oil Co. made location for No. 1 Lemmon, SW cor. SE, Section 11-11-3w. Location for No. 2 Lemmon has been staked, SE cor. SW SE, Section 11-11-3w. Wirt Franklin Petroleum Corp. has dug the cellar for No. 1 Theimer-Butterfield, NW cor. NE NE, Section 11-11-3w. Cromwell-Franklin Oil Co.'s No. 27 Trosper Park, SE cor. SW SW SW, Section 12-11-3w, is a cellar. Indian Territory Illuminating Oil Co. made location for No. 3 Hugh Trosper, NE cor. NW NE, Section 14-11-3w. Tom Slick Oil Co. has the cellar dug for No. 1 Page, NE cor. NW, Section 14-11-3w. Coline Oil Co.'s No. 11 Clauer, SW cor. NW SE, Section 25-11-3w, is a cellar. Indian Territory Illuminating Oil Co. has the cellar dug for No. 4 Peterson, SE cor. NE SW, Section 25-11-3w. Location has been made for No. 6 Johnson, SE cor. NE NW, Section 25-11-3w. Location was made for No. 4 Watters, SW cor. NW NE, Section 25-11-3w. Sinclair Oil & Gas Co. made location for No. 13 Vincl, NW cor. SE SE, Section 31-11-2w. No. 14 Vincl is a location, NE cor. SE SE, Section 31-11-2w. Location for No. 15 Vincl has been staked, SW cor. SE SE, Section 31-11-2w. No. 16 Vincl is a location, SE cor., Section 31-11-2w. T. B. Slick, Phillips Petroleum Co. and the Prairie Oil & Gas Co.'s No. 3 Sigmon, NW cor. SW SW, Section 32-11-2w, is a rig going up. T. B. Slick, Phillips Petroleum Co. and the Prairie Oil & Gas Co. has the rig on the ground for No. 4 Sigmon, SW cor., Section 32-11-2w.

Cromwell-Franklin Oil Co.'s No. 12 Trosper Park, SW cor. SE SE, Section 12-11-3w, made 1,371 bbls. in Arbuckle lime 6,146-6,435 feet. No. 8 Trosper Park, SW cor. SW, Section 13-11-3w, has been completed for 7,891 bbls. in sand 6,326-64 feet. Indian Territory Illuminating Oil Co.'s No. 3 Wheeler, NE cor. NW SE, Section 13-11-3w, made 6,730 bbls. in 12 hours from Arbuckle lime 6,095-6,497 feet. No. 2 May Knox, SE cor. NE SE, Section 14-11-3w, has been completed for 4,052 bbls. in 12 hours in sand 6,305-71 feet. No. 1 Werner-Farley, NE cor. SE, Section 23-11-3w, had sand 6,395 feet, total depth 6,533 feet and made 1,688 bbls. in 12 hours. No. 2 Werner-Farley, SE cor. NE SE, Section 23-11-3w, has been completed for 960 bbls. in 12 hours from sand 6,285-6,547 feet. No. 1 Foster-Worley-Heights, NE cor. NW SW, Section 24-11-3w, had sand 6,391, total depth 6,574 feet and flowed 986 bbls. in 12 hours. No. 3 K. Henning, SE cor. SW SE, Section 24-11-3w, made 91 bbls. in Arbuckle lime 6,270-6,482 feet after plugging back from 6,642 feet. Coline Oil Co.'s No. 4 Clauer, SW cor. SE SE, Section 25-11-3w, flowed 4,968 bbls. in 12 hours from sand 6,300 feet, total depth 6,573 feet. Indian Territory Illuminating Oil Co.'s No. 3 Watters, SW cor. NE, Section 25-11-3w, has been completed for 3,529 bbls. in sand 6,388 feet, total depth 6,434 feet. No. 3 Farley, NE cor. NW, Section 19-11-2w, had Arbuckle lime 6,050-6,535 feet and made 3,022 bbls. in 12 hours. Sinclair Oil & Gas Co. and Amerada Petroleum Corp.'s No. 4 Kinter, SE cor. SW SE, Section 30-11-2w, made 100,000,000 feet of gas in Arbuckle lime 6,370-95 feet. No. 6 Kinter, NE cor. SW SE, Section 30-11-2w, has been shut in for 75,000,000 feet of gas at total depth 6,370 feet. Indian Territory Illuminating Oil Co.'s No. 3 Jones, SE cor. NE NW, Section 31-11-2w, flowed 5,092 bbls. in 12 hours from sand 6,501-95 feet. No. 6 Jones, SW cor. NW NW, Section 31-11-2w, has been completed for 5,289 bbls. in 12 hours in sand 6,467-6,629 feet. Sinclair Oil & Gas Co.'s No. 3 Vincl, NE cor. SE, Section 31-11-2w, made 4,655 bbls. in 12 hours from sand 6,380-6,667 feet.

Pawnee County

Henreco Oil Co. is building the rig for No. 5 Cotton, SW cor. NW NE, Section 6-20-8. Mooney and others' No. 1 Tillock, SE cor. SW NE, Section 20-20-10, is rigging up. Geraldine Oil Co.'s No. 5 Edmiston, NW cor. SW SW, Section 30-21-9, has been completed for 15 bbls. in Layton sand 1,085-1,115 feet. Martin Oil Co. and others' No. 6 Cotton, NW cor. NE SW, Section 6-20-8, has been completed for 280 bbls. in Tucker sand 2,699-2,707 feet. The Prairie Oil & Gas Co.'s No. 5 Cotton, NW cor. SE NW, Section 6-20-8, has been completed for 30 bbls. in Tucker sand 2,631-42 feet. Reece & Fugate's No. 1 Turner, CWL NW NW, Section 18-20-8, made 750,000 feet of gas in sand 970-78 feet.

Pottawatomie County

Payne and others' No. 2 Bullock, SW cor. SE NE, Section 22-6-3, is a rig on the ground. The cellar has been dug for No. 3 Bullock, NE cor. SE NE, Section 22-6-3. Transcontinental Oil Co. made location for No. 1 Miller, SE cor. NE NE, Section 22-6-3. Indian Territory Illuminating Oil Co. staked location for No. 2 Butler, NW cor. SW NW, Section 23-6-3. Independent Oil & Gas Co.'s No. 10 Knappenberger, SW cor. NW NE, Section 8-9-5, Earlsboro Pool, has been completed for 400 bbls. in Wilcox sand 4,349-59 feet. Eason Oil Co.'s No. 1 Earlsboro Townsite, Block 17, Lot 10, C SE NW, Section 8-9-5, swabbed 430 bbls. in Wilcox sand 4,347-62 feet. Magnolia Petroleum Co.'s No. 1 Wyatt, SE cor. SW NE, Section 4-7-4, St. Louis area, has been completed for 24 bbls. at 3,900 feet after plugging back from 4,315 feet. Pure Oil Co.'s No. 1 Duval, NW cor. NE SE, Section 4-7-4, pumped 25 bbls. at 4,214 feet after plugging back from 4,312 feet. Magnolia Petroleum Co.'s No. 5 Billington, NW cor. NE NW, Section 22-7-4, drilled to 4,172 feet in Simpson sand, plugged back to 4,142 feet and made 8,000,000 feet of gas. No. 3 Hilton, SW cor. NW NW, Section 22-7-4, flowed 1,000 bbls. from Simpson 4,102-04 feet.

Garfield County

Tom Slick Oil Co. and Ramsey Oil Co. is building a rig for No. 1 Fulkerson, NW cor. NE NW, Section 15-20-4w.

Grant County

Continental Oil Co. is digging a cellar in the C SW NE, Section 2-27-3w, for No. 3 Webb. Consolidated Gas & Utility Co. has completed No. 1 Fox, C NE SE, Section 34-28-3w, as a dry hole, total depth 5,034 feet.

Kay County

Wentz Oil Corp.'s No. 1 G. Westherman, NW cor., Section 8-28-1w, was drilling at 200 feet.

Noble County

Indian Territory Illuminating Oil Co.'s No. 2 McCormack, NE cor. SE SW, Section 33-21-1w, made 17,000,000 feet of gas in sand at 3,367-72 feet.

Trends in Manufacture of Lubricants

Changes in Automobile Design Responsible for Present Tendency. Dewaxing of Bright Stock Naphtha Solutions

By D. G. Brandt
Henry L. Doherty & Co.*

Before discussing the modern trends in the manufacture of motor lubricants, it is perhaps advisable to first review the changes in automobile engine design that are responsible for the present trend. The competition of various automobile manufacturers and the development of better roads has resulted in the production of a machine of high mechanical dependability having a driving speed range from 5 to 90 miles per hour in high gear. Traffic conditions and the increased number of machines in operation have made the rate of acceleration one of the major factors in design.

In order to meet these conditions, the maximum developed horsepower required has been ever on the increase. This increase in horsepower has been accomplished by increasing the piston displacement, speed and compression ratio of the engine. A comparison of a group of cars of five years ago with corresponding cars of today illustrates how decided this change has been. The cars compared were of the same make, type and had the same number of cylinders. In the case of piston displacement, an increase of 7 per cent was found and there was a corresponding increase in the compression ratio of 12.2 per cent. The average figures for the compression ratios were 4.46 to 1 and 5.0 to 1, showing an increase of 0.54 over the five-year period. The increase in speed is marked, as the average revolutions per minute at maximum developed horsepower five years ago was 2,443, whereas today it is 3,014, which is an increase of 23.4 per cent. In the case of maximum developed horsepower, the increase has been remarkable, showing a gain of 52 per cent, or from 52 to 79 horsepower over the five years.

Operating Range

As mentioned above, the figures quoted are not the figures of the overall increase in the factors mentioned, but represent only a selected number of representative cars on which a direct comparison could be made. As the maximum developed horsepower increases, the operating range also increases in as much as the minimum power requirement remains fixed. We have lengthened the driving range, but the average driving speed has not increased proportionally because of the increase in traffic. However, on the open road the average driving speed has increased from approximately 35 to 50 miles per hour. Thus we actually have two average conditions that are widely different, that is, the car must function properly at a comparatively low driving speed, with quick acceleration in traffic, and at high driving speed under open road conditions. This wide variation of operating conditions has introduced new complications in the lubricating problem and because this change has been gradual over a period of years, the production of a lubricating oil for the service has been a continuous research problem. The automobile manufacturer has assisted in this problem by equipping th engine with forced feed lubricating systems, oil filters and crankcase ventilators, all of which prolong the life of the lubricant used and help to maintain the original viscosity of the oil.

Increase in Viscosity

There has been a constant increase in the viscosity of the lubricant used in the automobile engine as the speed and compression ratios increased. The viscosity of the lubricants have now increased to a point where we are experiencing carbon formation in the cylinders and valves due to the breakdown of the heavy oil and difficulty in starting and lubrication during cold weather. This is a direct result of the low fluidity and tendency toward plasticity of the heavier lubricants at frigid temperatures. The production of low cold test oils is helping to improve the situation but much difficulty is still encountered because of the high shear stresses at low temperatures and the fact that during the starting period practically no lubricant reaches the cylinder walls. This is due entirely to the fact that even though the pourpoint of the lubricant is low its plasticity at the lower temperatures is high and the splash system of delivering lubricant to the cylinder walls is not effective as long as the temperature of the lubricant remains low. This causes undue wear on both the piston and cylinder walls during the starting period in cold weather provided the lubricant is cold at the time of starting. The cranking effort necessary under these conditions is high and increases rapidly with the viscosity of the lubricant. Difficulty in pumping the lubricant is encountered for the same reason and it is found that the lubricant must reach its pourpoint temperature before pumping will be satisfactory. For this reason the pourpoint of lubricants has been given major consideration and it has been found possible to produce oils from almost any type of crude oil of substantially zero pourpoint. Although these oils are now being produced commercially they have failed to materially reduce the starting difficulties, due to the plasticity of the lubricant at low temperatures.

*Before N.P.A meeting, Cleveland, Ohio.

Three Major Functions

Fundamentally, the lubricating oil in an engine performs three major functions, first, lubricating the moving parts; second, sealing the pistons; and, third, cooling. First, from the standpoint of lubrication of moving parts, it may be pointed out that in the development of other high speed machinery the trend has been toward a lubricant of lower viscosity. If the coefficient of friction were

$$\frac{ZN}{P}$$

plotted against a modulus $\frac{ZN}{P}$, in which Z is the relative viscosity of the fluid, N is the speed of the bearing surface, and P is the normal pressure on the bearing surface per unit area, it would be noted that as $\frac{ZN}{P}$ approaches zero the coefficient of friction increases rapidly and, also, that as the value of $\frac{ZN}{P}$ becomes greater, the coefficient of friction increases very slowly. The zone of unstable lubrication is that portion of the curve where the film of lubricant is broken and the value of the modulus $\frac{ZN}{P}$ approaches zero. Stable lubrication is represented by the right hand portion of the curve where the coefficient of friction rises slowly with a corresponding increase in value of $\frac{ZN}{P}$. Thus for a given speed and pressure there is required an oil of sufficient viscosity to maintain stable lubrication. For high speed machinery operated at constant speeds, the selection of a proper lubricant is relatively simple, but in the case of the present day automobile engine operated at a wide range of speeds, the selection is not so easy. The selection, however, should be made so that at slow speeds lubrication will be stable and the coefficient of friction low. This would necessarily make the coefficient of friction greater at high speeds, but in order to secure stable lubrication at all speeds some efficiency must necessarily be sacrificed. From this reasoning it is evident that the proper oil for lubricating purposes does not need to be extremely viscous and that the heavy oils now being used were selected for other reasons.

Piston Seal

Considering the changes that have resulted in the present day automobile, it must be borne in mind that difficulty in securing a satisfactory piston seal would be a direct result of the greater operating range of the machines and the higher compression ratios. It has already been mentioned that, although the approximate driving speed on the open road has risen as high as 50 miles per hour, the usual driving speed because of traffic conditions is not materially higher than it has been in the past and the percentage of idling time has increased. Confronted with this condition we find that when operating at low speeds a decided vacuum is created in the cylinders on the intake stroke and that some of the lubricant is drawn into the cylinder although the seal is not broken. Likewise when operating at high speeds, difficulty is also encountered in the loss of lubricant.

However, in this case the difficulty results from the higher temperature of the cylinder walls and the reduced viscosity of the lubricating oil film forming the piston seal. At the higher speeds the piston ring does not wipe the wall entirely clean on the down stroke and on the compression stroke this oil is carried into the combustion space by the piston. In the case of the older engines the normal operating speed was closer to the maximum operating speed and the difference in cylinder and crankcase pressures was not so pronounced. Likewise, in as much as operating speeds were lower, temperatures were not so high and the securing of an effective piston seal, even with the less viscous oils, was not difficult. The rapid loss of viscosity with temperature should receive considerable attention, for although there is very little information available as to piston working barrel temperatures, it is not unreasonable to assume that they are as high as 430° F. If the absolute viscosity of an oil is plotted against temperature on logarithmic paper a straight line is secured. If the lines of three lubricants of different viscosities, but from the same crude oil base, such as of S.A.E. 30, 40 and 50 viscosity range are plotted, it will be found that the lines converge at the higher temperatures, indicating that lubricants having a wide variation in viscosity at test temperatures have substantially no difference in viscosity at high temperatures. Thus, I believe that a more effective seal could be produced by the reduction of the operating temperature of the lubricant than by increasing its viscosity as measured at the usual temperatures.

Cooling Function

The third duty of an automobile lubricant is the cooling of bearings and moving parts. Under present conditions the temperature of the crankcase rises from the starting temperature to an average of from 130° F. to 150° F. Increased engine speeds and bearing pressures have

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GEOPHYSICAL PROSPECTING FOR PETROLEUM ON GULF COAST

By Donald Barton
Consulting Geologist and Geophysicist, Houston, Tex.*

The past year has been the most successful in the Gulf Coast and has been notable for four features:

The discovery of more real fields than in any previous year in the Gulf Coast and the discovery of all the fields has been on geophysical domes. Commercial production was discovered during the year on eight domes, six by the seismograph and two by the torsion balance. Small amounts of oil were discovered on 10 old domes, 8 discovered by the seismograph and 2 by the torsion balance.

The continued brilliant success of the torsion balance and seismograph in discovering new domes chiefly deep and very deep domes. Probably at least 20 domes were discovered during the year and possibly 30. Fifteen fairly probable discoveries are known to the writer but he has made no definite attempt to check the authenticity of all the reported discoveries of the year.

The recognition of the value of deep and very deep domes and the extension of the geophysical technique to handle them.

The renaissance of the torsion balance method in the Gulf Coast. About three years ago the torsion balance had almost been run out of the Gulf Coast by the seismograph and by negligent results of tests drilled on numerous maxima and minima. The torsion balance suddenly was recognized as being able to pick up deep domes and very deep domes which were obscure with the seismograph and now some 80 or more torsion balances are at work in the Gulf Coast.

*Before fifteenth annual meeting, A.A.P.G., New Orleans, La., March, 1930. Revised paper will be published in A.A.P.G. Bulletin.

Elsewhere Than on Salt Domes

Considerable continued use of the seismograph, torsion balance, and magnetometer methods has continued in Texas and Louisiana, and, outside of the salt dome area, in Mississippi, Alabama, Oklahoma, Kansas, California and Venezuela and there has been extended use of the methods elsewhere. Opinion seems to be rather divided about the value of geophysical work in all these areas. Some are well satisfied with the results of their work, others are extremely dissatisfied and skeptical of the geophysical work in the same area. Each of the four main methods, seismograph, torsion balance, magnetometer and electric have shown some ability to map structure. The problem is the degree of ability which the several methods may have and whether it is sufficient to warrant the continued use of the methods or of particular ones of the methods.

The Hobbs high in southeast New Mexico is a discovery definitely to be granted to the torsion balance and magnetic methods. Such highs as the Healdton and Hewitt highs in southern Oklahoma stand out most conspicuously as torsion balance surveys. Such "granite" ridges as the Amarillo ridge and the Nocona-Muenster ridge stand out quite clearly in the torsion balance and magnetic surveys. The electric method has shown its ability to map Darst Creek. The seismograph has demonstrated its ability to map structure in certain areas

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IT MUST NOT FAIL A SINGLE TEST

There isn't a more difficult code of requirements in the production of any steel product than that which Republic Steel Pipe must pass. At practically every process during manufacture, an exacting test is given or a rigid inspection made. Hydrostatic pressure tests—flattening tests, tests for tensile strength, for ductility . . . Inspections for possible variance in size and wall thickness, imperfect form, crookedness, torn or shaved threads and other flaws. Every length of pipe must pass every test. So that, when Republic Steel Pipe is finally ready for delivery to the buyer, it has been approved beyond any doubt, stamped with the Republic degree of quality and uniformity, guaranteed for lasting service.

REPUBLIC
STEEL CORPORATION. YOUNGSTOWN O.
STEEL PIPE

Dusters Appear in Muskingum Pool

County Most Active in Southeastern Ohio. First Gas Well in Niagara Lime, Wayne County, West Virginia

By D. S. Wakenight
Staff Correspondent, Eastern Fields

PITTSBURGH, Pa., Apr. 28.—Since the eastern fields were last reviewed, nearly all of the late completions came in light producers. Dusters have recently made their appearance in the new pool in Muskingum County, Ohio. For a brief period it has been furnishing more large wells than any other county. The new work under way and starting will, when completed, show if the producing area of the pool can be extended. At the present time it does not look like it would have a large acreage.

One of the most important discoveries was made in West Virginia when the Chartiers Oil Co. brought in a good gasser when drilled into the Niagara lime. This company has been operating in Wayne County for some years and has completed a number of small wells in the Berea grit.

SOUTHEAST OHIO

In the NE of Section 4, Harrison Township, Perry County, the Preston Oil Co. completed and shot in the Clinton sand a second test on the Oral Moore farm. The well produced 90 bbls. the first 24 hours. In the NW of Section 23, Jackson Township, the Kessling Drilling Co. has completed and shot in the Clinton sand a test on the Marie Donhour farm. It is a duster.

Guernsey County

In the SE of Section 10, Wheeling Township, Guernsey County, the East Ohio Producing & Refining Co. has completed in the Niagara Lime No. 3 on the Amanda M. Gray farm. It produced 50 bbls. the first 24 hours after drilled into the pay. In the NE of Section 1, same township, the Ohio Fuel Gas Co.'s No. 3 on the W. J. Alloway farm is a duster and has been abandoned.

In the SE of Section 15, Perry Township, Muskingum County, the Wittmer Oil & Gas Properties Co. completed in the Red Rock sand a test on the Wilbert Dailey farm. It is a duster. In the SE of Section 5, Perry Township, the same company has completed a test on the Treahay heirs' farm, dry in the same formation at a total depth of 4,050 feet.

In the SW of Section 4, Hopewell Township, Muskingum County, the Hope Construction & Refining Co. completed and shot in the Clinton sand a test on the George Williams farm. It produced 60 bbls. the first 24 hours. In new work, Muskingum County is leading.

In Lake Township, Ashland County, the Great Lakes Oil Co. completed in the Berea grit No. 5 on the John P. Smith farm. It is a light gasser, showing a little oil. In the SW of Section 11, Sutton Township, Meigs County, Smith & Watterson completed in the Cow Run sand a test on the Edward Dalzer farm, dry in the formation named. In Section 10, same township, Koontz & Co. started to drill a second test on the Arthur Beegles farm. In Section 4, same township, the Twenty-Five Association, Inc., started to drill on the William Carnahan farm.

In Washington Township, Muskingum County, the Ohio Fuel Gas Co. has completed a gasser on the Roy C. Haines farm. In Perry Township, the Wittmer Properties Oil & Gas Co. has a duster on the Treahay farm. The same company has a dry hole on the Wilbert Dailey farm.

In Section 31, Center Township, Noble County, T. A. Clark & Co. have a duster in all sands at a second test on the Robert Bryan farm. In the same township, local parties have completed a test on the J. T. Reed farm. It is a good gasser in the Berea grit and later may be drilled to the Gordon sand. In Enoch Township, B. E. King & Co.'s No. 6 on the L. R. Crum farm is good for 20 bbls. a day. In Section 13, the Ohio Fuel Gas Co. has a 3-bbl. pumper on the Abbie Davis farm. In Enoch Township, Urban Nau & Co. have a very light pumper in the Buell Run sand at a second test on the A. H. Hupp farm.

In Section 12, Brown Township, Vinton County, I. C. Robinson completed in the Clinton sand a test on the Lewis P. Drayer farm. It is a gasser good for 500,000 feet. In the SW of Section 16, Rush Creek Township, Fairfield County, Murl Myers has a very light pumper in the same formation on the Williamson-Stuart lots.

In Section 9, Monroe Township, Coshocton County, the Ohio Fuel Gas Co. has completed a test on the Lewis Reiss farm. It is a gasser good for 1,000,000 feet and showing a little oil.

Muskingum County

In Section 28, Brush Creek Township, Muskingum County, the Fritz Oil Co. completed in the Clinton sand a test on the H. T. Swingle farm. It is a gasser good for 4,000,000 feet. In the NE of Section 21, Oxford Township, Tuscarawas County, the Gordon Oil Co. and others completed in the Niagara lime a test on the Philip Lamneck farm. Nothing was developed but a light show of gas at a total depth of 3,650 feet. It has been abandoned. Three miles north of Canaanville, Section 18, Canaan Township, Athens County, Charles D. Mosher & Co. have a 3-bbl. pumper in the first Cow Run sand at No. 5 on the Lena L. Bean farm.

On Sugar Camp Run of Reedy Creek, Reedy district, the Hope Construction & Refining Co. completed and shot in the Berea grit No. 4 on the H. F. Enoch farm, 500 feet north of No. 3 and good for 40 bbls. a day. In the same district, the Heck Oil Co. completed in the same formation No. 2 on the C. H. Kincaid & Co. farm. It is a 5-bbl. pumper.

In Chapmanville district, Logan County, the Big Creek Gas Co. has a gasser at a second test on the L. D. Blevis farm.

In Carroll district, Lincoln County, the Allegheny Gas Co.'s No. 4 on the Sheralia Renolds farm is a gasser in the Berea grit. In Union district the same company has a gasser in the same formation at No. 5 on the Horse Creek Land & Mining Co.'s tract.

In Henry district, Clay County, the South Penn Oil Co. completed in the Big Injun sand No. 8 on the R. P. Parker farm. It is estimated good for 10 bbls. On Buffalo Creek of West Fork River, Union district, Harrison County, the Reserve Gas Co. completed a test on the I. N. Burnside farm. It is a gasser in the Speechley sand and spraying oil at the rate of 2 bbls. In Lee district, Calhoun County, F. F. McIntosh has the rig completed for a test on the Hunt-Hamilton farm.

WEST VIRGINIA

In Butler district, Wayne County, West Virginia, the Chartiers Oil Co. has something out of the ordinary at its test on the J. M. Sayler farm. It drilled through the Berea grit and found nothing, then decided to drill deeper and at a total depth of 3,721 feet reached the Niagara lime. It is a gasser good for 3,000,000 feet. This is the first well that has drilled to the Niagara lime in that locality and may lead up to the discovery of a new gas pool in that formation.

In Union district, Lincoln County, the South Penn Oil Co.'s test on the John W. Egan heirs' farm is a very light pumper in the Berea grit. In Scott district, Putnam County, the Reishman Oil & Gas Co. completed through the Berea grit a test on the J. O. Draper farm. It is dry in all sands.

In Grant district, Cabell County, the Harshbarger Oil & Gas Co. has a gasser in the Berea grit at No. 4 on the R. C. Kilgore farm. In the same district, the same company has started to drill on the James Conner farm. In Butler district, Wayne County, the Chartiers Oil Co. is drilling at 3,600 feet on the J. B. Sayler farm.

In Lincoln district, Wayne County, the Wayne Fuel Gas Co. has a fair gasser at No. 24 on the A. W. Wilson tract. The same company's No. 30 on the same tract is a fair gasser and later will be drilled to the Maxon sand oil pay.

Ritchie County

On Leatherbark Run, Murphy district, Ritchie County, A. H. Jackson completed in the Big Injun sand a test on the Riddle heirs' farm. It is a gasser good for 500,000 feet. The Chemical Oil & Gas Co. completed a few days ago a second test on the A. T. Yoak farm. It has now been given a shot in the Maxon sand and good for 5 bbls. a day.

In McKim district, Pleasants County, Samuel & Gale completed in the Maxon sand No. 18 on the Gale heirs' farm. It is a 10-bbl. pumper. In Paw Paw district, Marion County, on Paw Paw Creek, the Carnegie Natural Gas Co. has drilled a test on the Charlotte Price farm through the Fifth sand. It is a light gasser.

In Union district, Pleasants County, Albert Neely's test on the Ralph Williamson farm is a duster. It has been abandoned. On Buffalo Creek of West Fork River, Union district, Harrison County, the Reserve Gas Co. is drilling a test on the I. N. Burnside farm.

Jackson County

On Bucks Run of Sandy Creek, Ravenwood district, Jackson County, the Field Gas Co. has the rig completed for another test on the G. A. Delaney farm. On Bull Fork of Tanners Creek, DeKalb district, Gilmer County, Park Bowser has a rig up for another test on the Robert Mitchell farm. In Sheridan district, Calhoun County, the Hope Natural Gas Co. has started to drill on the E. E. Wilson farm. In Clay district, Monongalia County, the National Supply Co. has completed a rig on the Lemley Martin farm. In Jefferson district, Lincoln County, the Federal Gas Co. has made a location on the Louisa J. Tudor farm. In Grant district, Cabell County, the Harshbarger Oil & Gas Co. is rigging up on the C. C. Conner farm.

On Three Mile Creek, Sheridan district, Calhoun County, the South Penn Oil Co. has completed the rig for a second test on the Henry Gregg farm. In Union district, Lincoln County, the Woodal Gas Co. has made a location on the James A. Lambert farm, and started to drill on the Ambrose Adkins farm. In the same district, the Russell Gas Co. is rigging up on the M. A. Stump farm. In Scott district, Boone County, the Owens Bottle & Machine Co. has made a location on the Cora Barker farm. In Sheridan district, Calhoun County, the Great Elk Oil & Gas Co. has made a location on the Samuel Bachman farm. In West Union district, Doddridge County, Zickefoose & Swadley have started to drill on the John Batton farm. In Freemans Creek district, Lewis County, the Reserve Gas Co. is rigging up on the S. D. Camden farm.

SOUTHWEST PENNSYLVANIA

In Dunkard Township, Greene County, the Greensboro Gas Co.'s test on the I. T. Smith farm is dry and abandoned in all sands. In the same township, the same company has completed in the Big Injun sand a test on the Lewis Vance farm, estimated good for 3 or 4 bbls. In Perry Township, the South Penn Oil Co. completed a test on the Newton Lemley farm, estimated good for 3 or 4 bbls. in the Big Injun sand.

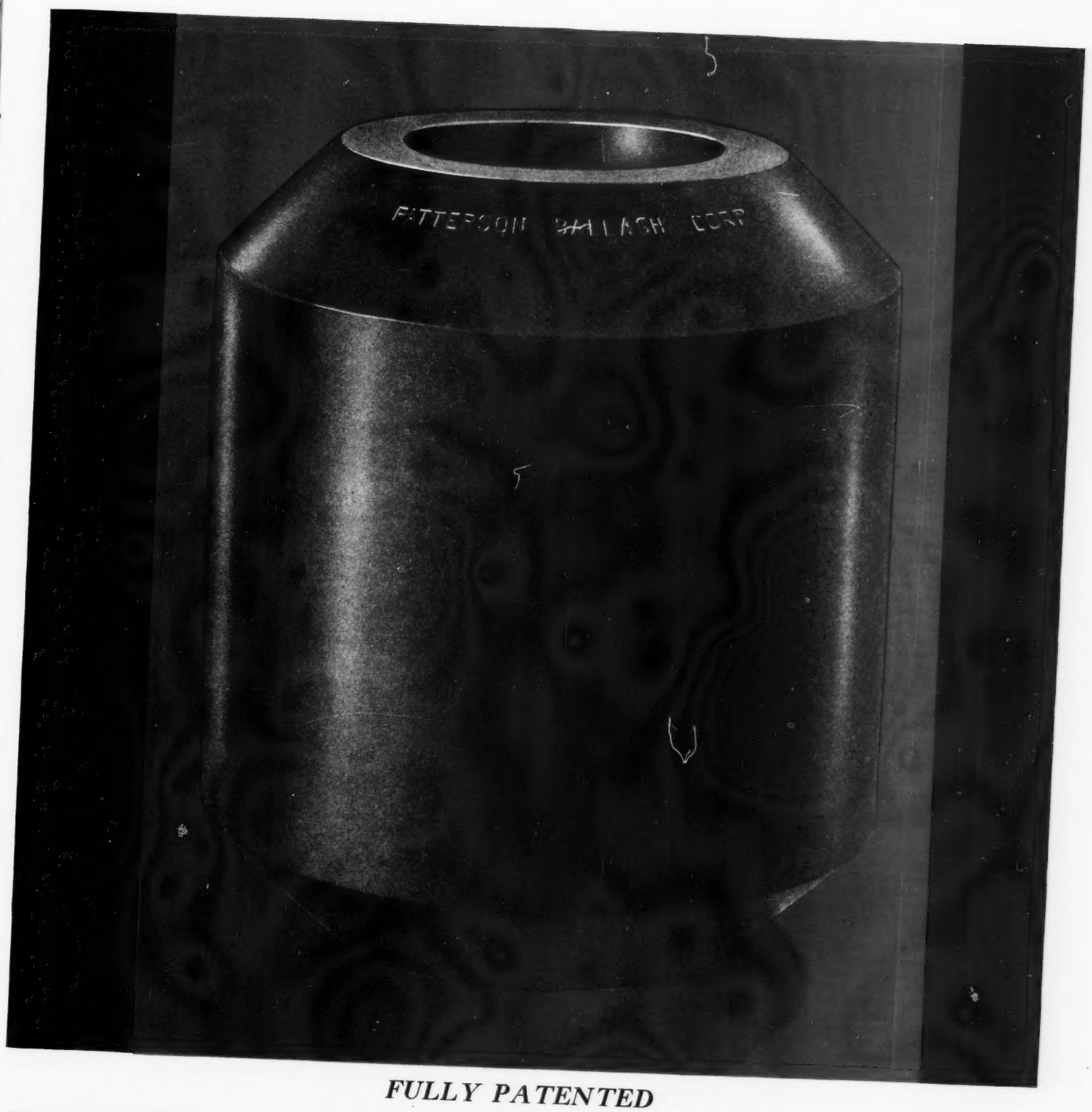
In Big Beaver Township, Lawrence County, Pittsburgh parties have completed a test on the Charles Duff farm. It is a duster. In Plum Township, Allegheny County, the Edgewater Steel Co. completed No. 4 on its own property. It is a gasser in the Speechley sand. In Penn Township, the Woodings Forge & Tool Co. has a gasser in the Murrysville sand at a test on its own property.

READY FOR FIELD LECTURE

Group of geologists at the Seventeenth Oklahoma Field Conference on Permian of Southwestern Kansas-Northwestern Oklahoma.

TECHNOLOGISTS' EXAMINATION

The United States Civil Service Commission announces open competitive examinations for petroleum technologist (production or refining), $3,800 a year; associate petroleum technologist (production or refining), $3,200 a year; and assistant petroleum technologist (production or refining), $2,600 a year. Applications must be on file at Washington not later than May 28, 1930.



FULLY PATENTED

STABILIZERS

Natural Gas Developments

NEW HELIUM PROCESS HAS REDUCED THE PRICE

A process of extracting the valuable helium from natural gas, said to be revolutionary, is disclosed by the Helium Co., of Louisville, Ky.

The new process has reduced the price of helium to $35 per 1,000 feet (in 1916 helium cost $1,700,000 per 1,000 feet), the lowest price, including all costs, at which helium has ever before been made available. The most significant phase is that the cost of using helium in airships is now almost on a parity with hydrogen. It is used exclusively by American airships but because helium is found in no other countries and because it is not readily exported due to prohibitions, foreign airships are compelled to use hydrogen.

E. H. Courtenay, vice president of the Girdler Corp., which controls the Helium Co., explains that the new process requires a single operating cycle only. Other processes require three separate cycles of operation, each cycle operating independently but concurrently. The new process removes all other constituents of the gas at one time, leaving the helium.

"The secret of our process," he says, "lies in the design of our smaller and vastly more efficient separation column. For instance, with other methods, it is necessary to run the crude helium through a second cycle to bring it to the required purity but with ours this operation is eliminated. Briefly, our operations consist of purifying the natural gas, compressing it and running it through our one cycle, where the helium, at high purity, emerges under the required pressure for filling cylinders and shipping."

OKLAHOMA NATURAL UPHELD

MUSKOGEE, Okla., Apr. 26.—No effort will be made by the Oklahoma Natural Gas Corp. to reconnect with the city's pipe line to the city pump station at Hyde Park immediately, it was said after a court order directing the city to reconnect with the Oklahoma Natural.

The city pump station and 180 private customers are now served by the Municipal Gas Co. The Municipal has been operating this line since April, 1928, and the Oklahoma Natural officials said they wanted all arrangements completed so that every private customer along the line would have gas before the change is made.

The United States circuit court of appeals upheld the Oklahoma Natural's contention that the city's contract with the Municipal company is void, for the reason that the city did not comply with the terms of a previous contract with the Oklahoma Natural that it must give 90 days' notice before cancelling its contract. This decision was handed down at Denver. It reversed the local federal district court.

NEW MEXICO FRANCHISE

The Southern Union Gas Co. of Dallas, Tex., was awarded a franchise to supply Albuquerque, N. M., with natural gas at a special election.

A $2,000,000 natural gas pipe line will be built from the Aztec Pool of San Juan County, northwestern New Mexico, to Albuquerque, approximately 170 miles, and the company has been given five months in which to complete the project.

Walter Reid, vice president of the Southern Union Gas Co., said that construction would start immediately. The right of way has been arranged for. Having won the Albuquerque franchise, the Southern Union will now apply for a franchise at Las Vegas, it previously getting the franchise at Santa Fe.

CARBON BLACK PRODUCTION IN 1929 WAS 47 PER CENT ABOVE THAT OF 1928

The rapid increase in production that has characterized the carbon black industry was very pronounced in 1929 when the output was 47 per cent above that of 1928, according to the United States Bureau of Mines. The total quantity produced in 1929 amounted to 366,422,000 pounds, an increase over 1928 of 117,652,000 pounds.

Total sales of carbon black to domestic and foreign buyers in 1929 amounted to 283,806,000 pounds, compared with 280,579,000 pounds in 1928. Exports were materially higher than in 1928 but sales for domestic consumption dropped off from 202,676,000 pounds in 1928 to 191,977,000 pounds in 1929, a decline of 5 per cent.

The trend in stocks at the plants was reversed in 1929; a material decrease in stocks during 1928 was followed in 1929 by increases which totaled about three times the 1928 withdrawals. The quantity stored on December 31, 1929, amounted to 132,203,000 pounds, or 170 days' supply, compared with 50,240,000 pounds or 65 days' supply on hand on January 1.

The total production of 366,442,000 pounds had a value at the plants of $18,720,000. Although this represents an increase of nearly $5,000,000 over the previous year, the average per pound declined from 5.54 cents to 5.11 cents. The latter was the lowest value or wholesale price that has been reported to the bureau since carbon black statistics were first compiled in 1919.

A total of 264,107,000,000 feet of natural gas was burned in the manufacture of carbon black during 1929. This indicates an average recovery of 1.39 per 1,000 feet of gas as compared with 1.42 pounds in 1928 and 1.38 in 1927.

Of the total output in 1929, 327,552,000 pounds, or 89.4 per cent, was produced by means of the channel process and 38,890,000 pounds, or 10.6 per cent, by the thermatomic, Lewis, roller, disc, and "special" processes. This indicates a slight increase in the proportion manufactured by the channel process over a year ago.

The carbon black industry is dependent upon a supply of cheap gas and, in order to find such a supply, has had to migrate before the encroachment of the higher priced uses for natural gas. A distinct step in this migration occurred during the last half of 1928 when the center of production moved from Louisiana to Texas. Accordingly the latter was the leading producing State in 1929 with a total output of 228,183,000 pounds, or 126 per cent above the 1928 output. Of this, 199,104,000 pounds, or 87 per cent, was produced in the Panhandle and 29,079,000 pounds, or 13 per cent, in the general vicinity of Breckenridge. This indicates a gain in the relative importance of the Panhandle as a carbon black producing center. Production in Louisiana, now the second State in importance, totaled 127,345,000 pounds as against 136,320,000 pounds the previous year. This decrease indicates that the producers in the Monroe Field have already begun to be affected by the competition of the large natural gas pipe lines that tap this field. The production of the remaining carbon black producing states, namely Montana, Oklahoma, Utah, West Virginia and Wyoming, amounted to 10,914,000 pounds in 1929. This represents only 3 per cent of the total as compared with 5 per cent for the "other" states in 1928. Oklahoma entered the ranks of the carbon black producing states for the first time in 1929. Kentucky, one of the pioneer states in carbon black production, had no production in 1929, a further indication of the westward migration of the industry.

The domestic distribution of carbon black sales among the major users in 1929 was as follows:

Industry—	Quantity (Lbs.)	%
Rubber	138,474,000	72
Ink	27,350,000	14
Paint	17,257,000	9
Miscellaneous	8,896,000	5
Total	191,977,000	100

These data indicate that the use of carbon black by the rubber industry is still the dominating factor in the trade.

The export trade in carbon black continued to expand in 1929 when a total of 91,829,000 pounds was shipped to foreign countries. This compared with shipments of 77,903,000 pounds in 1928, a gain of 18 per cent. The 1929 exports were valued at $8,271,000, an average of 9 cents per pound, as against 8.72 cents in 1928. The majority of the countries to which we export carbon black reported an increase in the trade in 1929. The United Kingdom continued as our leading carbon black customer, followed, in order, by France, Germany and Canada.

The primary statistics of the carbon black industry in 1929 compared with 1928 are as follows:

	1928	1929
Number of producers reporting	31	35
Number of plants	65	71
Quantity produced (lbs.):		
Louisiana	136,320,000	127,345,000
Texas	100,828,000	228,183,000
West Virginia	697,000	578,000
Kentucky	484,000	.....
Other states	10,461,000	10,336,000
Total	248,790,000	366,442,000
Produced by (lbs.):		
Channel process	220,532,000	327,552,000
Other process*	28,258,000	38,890,000
Stocks held by producers Dec. 31 (lbs.)	50,240,000	132,203,000
Losses (lbs.)	802,000	673,000
Sales (lbs.):		
Domestic:		
To rubber companies	140,938,000	138,474,000
To ink companies	27,223,000	27,350,000
To paint companies	20,040,000	17,257,000
To miscellaneous companies	14,475,000	8,896,000
Total	202,676,000	191,977,000
Export	77,903,000	91,829,000
Value (at plants) of carbon black produced:		
Total (dollars)	13,782,000	18,720,000
Average per pound (cents)	5.54	5.11
Estimated quantity of natural gas used (M cubic feet)	175,137,000	264,107,000
Average yield per M cubic feet (lbs.)	1.42	1.39

*Including disc, Lewis, roller, "special" and thermatomic.

GAS FOR PREHEATING ENGINES

Announcement of Fred Jackson, industrial engineer, Fort Worth (Texas) Gas Co., that natural gas will be utilized for preheating of railway locomotives recalls that this fuel was put to railway use in Oklahoma several years ago on the Oil Fields and Santa Fe line, a short branch connecting Dilworth with the main line of the Santa Fe Railroad in Kay County. Steam in a small engine on this line was generated by heat from a gas jet between the rails under the engine boiler which was kept burning except when the engine was on a trip. Sufficient steam was generated to carry the engine to the end of the line and back without further fueling. With the co-operation of one of the major railroads this preheating or steaming of locomotives with natural gas as a fuel has been thoroughly tested, according to Mr. Jackson, on locomotives ranging from small switch engines and small passenger types to the giants used in long-haul transportation service.

MISSISSIPPI GAS LINES

JACKSON, Miss., Apr. 26.—Senate Bill No. 275, introduced by Culkin in the legislature, is an act authorizing the board of supervisors of any counties, with a population of more than 30,000 and an assessed valuation of between $20,000,000 and $25,000,000 and having a city therein of more than 15,000 population, of this State to pay the cost of labor and material for extending natural gas mains along the highways outside the corporate limits of any municipality where such gas is issued for a distance not exceeding 5 miles as in their discretion may be to the public interest of the respective counties; provided, that such board of supervisors is to be reimbursed for such expenditure by the payment to them by the corporation, municipality, association or individual supplying gas to such municipalities of the gross receipts for gas consumed on such extended gas mains until the amount expended by such boards of supervisors shall have been fully repaid; and provided further that no part of such expense is to be paid by any board of supervisors unless there is situated along the route of such proposed gas main extension one or more county schools.

GAS METER SCHOOL ORIGIN

The suggestion of one man, W. H. Crutcher of Muskogee, Okla., division manager of the Oklahoma Gas & Electric Co., to E. S. McKay, manager of the Oklahoma Utilities Association, led that association, the Oklahoma Corporation Commission and the College of Engineering of the University of Oklahoma in 1924 to establish the Southwestern Gas Measurement Short Course, which recently held its seventh annual session at the University of Oklahoma, Norman, Okla. Beginning as an Oklahoma project with an enrollment of 60, the short course has grown until it embraces an attendance of 450 gas company executives and employes.

TO BUY KENTUCKY WELL

Missouri-Kansas Pipe Line Co. has obtained a purchase contract on one of the largest gas wells in western Kentucky. No. 1 Lonnie Todd near Earlington, Hopkins County, producing 3,690,000 feet per day. Two other Missouri-Kansas wells in the neighboring Kirkwood Springs Field test 7,650,000 feet. A pipe line route from these fields has been surveyed to Madisonville and Greenville, where Missouri-Kansas holds a distribution franchise.

GAS STORAGE EXPERIMENT

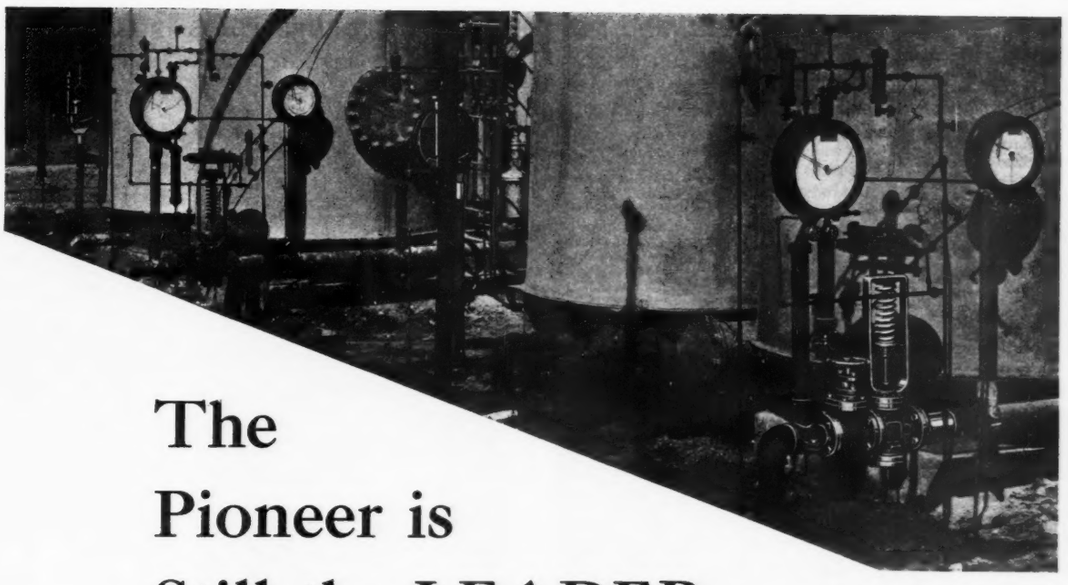
CHATHAM, Ontario, Apr. 26.—Canadian Western Natural Gas Co. of Calgary is reported to have started work on its experiment in the storage of Turner Valley waste gas in the exhausted sands of the Bow Island Field.

TABER EXTENSIONS

CHATHAM, Ontario, Apr. 26.—Preparations are being made by the Canadian Western Natural Gas Co. for the extension of its distributing system at Taber, Alberta, to include residential sections not served last winter.

RENEWING TRANSMISSION LINES

CHATHAM, Ontario, Apr. 26.—Canadian Western Natural Gas, Light, Heat & Power Co. of Calgary has let the contract for a new building at Claresholm, Alberta. Transmission lines for some distance east of Claresholm will be renewed.



The Pioneer is Still the LEADER

Foxboro Flow and Temperature Recorder - Controllers in a gasoline plant at Little River, Oklahoma.

Flow Control was pioneered in 1924 by Foxboro. Today over 1100 dependable fool-proof Foxboro Flow Controllers are successfully stabilizing industrial processes.

Oil Producers and Refiners throughout the world use Foxboro Flow Controllers. They have saved thousands of dollars and untold trouble for themselves. *What they have done you can do.*

The Foxboro Flow Controller is a controlling orifice meter. It combines the accuracy of the Foxboro Orifice Meter with the dependability of Foxboro Air-operated "Flapper Valve" Control.

In design and application of Controlled Valves for Flow Control, Foxboro is years ahead. Foxboro V-Port Valves are half the story on Flow Control. Write today for Bulletin 167-J —"Foxboro V-Port Controlled Valves."

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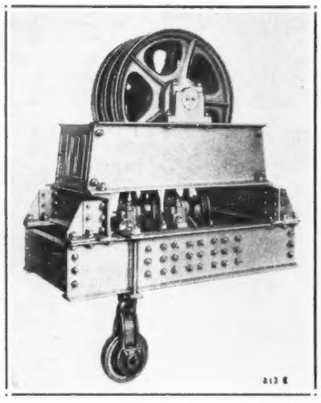
EQUIPMENT AND SUPPLIES

EMSCO INTRODUCES NEW HEAVY-DUTY CROWNBLOCK

A new rotary drilling crownblock has been developed by the Emsco Derrick & Equipment Co., Los Angeles, Calif. This block is intended primarily for Mid-Continent drilling and consequently does



not include sand and derrick line sheaves. The block is unusually strong, having a capacity of 195 tons, the framework being constructed of structural steel throughout. The rigidity of the block becomes apparent when the sizes of the beams are noted.

The upper deck is composed of 20″ 81.4-pound I beams. The base is composed of 15″ 70-pound I beams. Other beams are 12″ I beams. The upper sheaves are manganese steel 46″ diameter and are mounted on heavy roller bearings. Lower sheaves are also manganese steel and are 26″ in diameter and mounted on heavy roller bearings. A roller bearing catline sheave attachment can be supplied which is slung from one of the base beams. This catline sheave can swivel about 90 degrees.

Complete specifications and information are given in Advance Engineering Folder No. 100 issued by the Emsco Derrick & Equipment Co.

TRADE LITERATURE RECEIVED

Sixty-two reasons for using Bettis protectors on oil well casings are presented in a new piece of literature published by the Patterson-Ballagh Corp., Los Angeles, Calif., and distributed through the company's New York and Los Angeles offices and its various agencies in the Oklahoma, Texas and Gulf Coast fields.

The importance of precisely machined parts in deep well pumps is emphasized in an article in the current number of the Worthington News, published by the Worthington Pump & Machinery Corp., Harrison, N. J.

"Surveying Crooked Holes" is a new booklet by the Rieber Instrument Corp. of Los Angeles, Calif., dealing with causes and results of crooked holes and the remedy. All material presented is based upon the work of Frank Rieber, inventor of the Rieber instrument. Charts, illustrating surveys made in various fields, are included with other data.

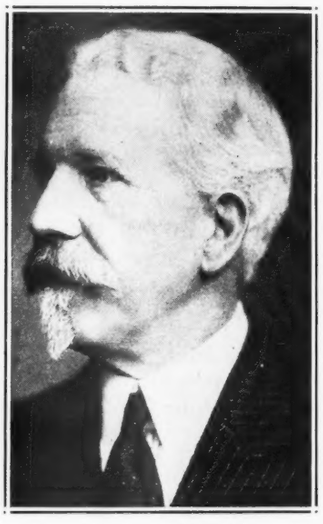
The Downingtown Iron Works, Downingtown, Pa., has issued a useful booklet, "Corrosion Resistant Alloys in General Fabrication," written by T. Holland Nelson, consultant metallurgist for the company.

MR. CALDWELL AND MR. LOLLEY TAKE HIGHER POSTS

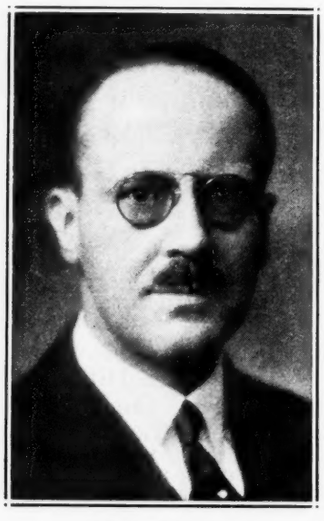
James H. Caldwell has been elected chairman of the board of the Ludlow Valve Manufacturing Co., Troy, N. Y., with which he has been associated as a general manager for 41 years, during 27 of which he was also president of the company.

Always active in the interests of the Waterworks Manufacturers' Association, Mr. Caldwell has served as its president and he has been chairman of the Flange Standardization Committee of the Valve Manufacturers' Association.

Born in Mobile, Ala., Mr. Caldwell is a graduate of Rennsselaer Polytechnic



James H. Caldwell



William H. Lolley

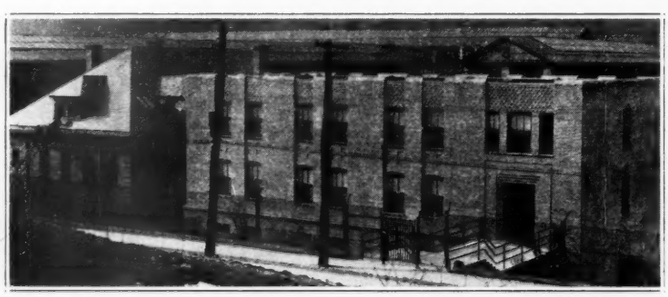
Institute, Troy, N. Y., and a member of its board of trustees. He is also a director of the Manufacturers' National Bank of Troy, N. Y., and active in philanthropic work.

The presidency of the Ludlow Valve Manufacturing Co. has been filled by the election of William H. Lolley, who is also director and general manager. For years Mr. Lolley was sales and engineering consultant for the Ludlow interests. He has had wide experience in industrial production, particularly with respect to close precision tools in the automotive and other branches of the metal working industries. Born in Perth, Scotland, a graduate of Springfield College and Polytechnic Institute of London, Mr. Lolley has represented American manufacturers in England, France and Germany, introducing American products, machinery and methods.

The Ludlow Valve Manufacturing Co. was organized and started business in January, 1866, in Troy, N. Y. By 1896 the business had outgrown three plants. The company in that year purchased the property of the Troy Steel & Iron Co. and at the same time started construction of a new factory along the Hudson River adjoining the New York Central freight yards, thus providing for excellent shipping facilities.

The company recently has acquired additional ground and contemplates an increase of production facilities at an early date as part of a program of expansion, diversification of products and general development.

OILWELL IN ITS NEW GENERAL OFFICES IN OIL CITY



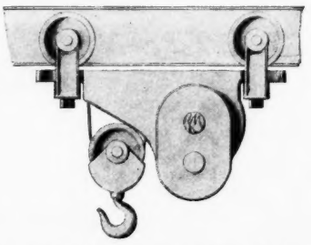
The Oil Well Supply Co. has moved its general offices from Pittsburgh to its new quarters in Oil City, Pa., the home of the company's Imperial works. Only the general executive staff and the accounting and credit departments will remain in the Clark Building in Pittsburgh where the entire general offices previously were maintained.

By moving into the recently completed office building adjacent to the plant, the company is in a better position to maintain a highly efficient working organization due to the clearing and shortening of the business channels through which all communications and business are transacted between the main manufacturing division and the general offices.

With the growth of the oil industry came the growth of the Oil Well Supply Co., established in 1862, and now the oldest manufacturer of oil-field equipment. "Oilwell" now extends a bigger, broader and better service.

ROBBINS & MYERS ADD BANTAM HOIST TO LINE

The hoist and crane division of Robbins & Myers, Inc., Springfield, Ohio, announces the Bantam hoist, the most recent addition to its line of electric hoists. The Bantam is small, light and



powerful. Among outstanding features are: (1) Light weight, 130 pounds complete with trolley, 110 pounds without. (2) Small size, overall dimensions of 18″x24″x14″, resulting in low headroom. (3) Speedy operation, 30 feet per minute. (4) 500-pound capacity. (5) Specially designed Robbins & Myers hoist motor, protected against dust and moisture. (6) Simple and positive lubrication system requiring minimum amount of attention. (7) Aluminum finish applied to entire hoist, makes for attractive appearance and is a safeguard against damage from exposure, etc. (8) Rugged construction throughout, large safety factor in all materials used.

The Bantam hoist is manufactured in styles suitable for use on alternating and direct current circuits with either rope or push button control. The latter is a newly patented simplified and centralized system of study construction. The frame is designed to permit the use of the standard I-beam trolley or any make of monorail trolley.

BULLARD COMPANY EXPANDS

Bullard-Davis, Inc. (of California) have announced a change in name to E. D. Bullard Co., thus reassuming a name known to industry for over 30 years. At the same time the company announces purchase of the First Aid Equipment & Supply Co. of Los Angeles, engaged in the manufacture and sale of first aid material and equipment for many years. The company's offices in San Francisco, Los Angeles, Seattle, Salt Lake City and Houston, provide 24-hour service to mines and industries west of the Mississippi River. The San Francisco office handles foreign and export business. Manufacturing will be continued in the San Francisco plant and the company will continue to operate the Los Angeles plant of the First Aid Equipment & Supply Co.

REPUBLIC STEEL CORP.

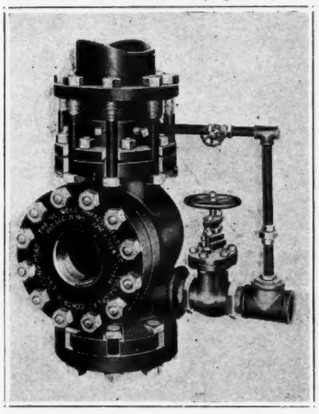
Formation of the Republic Research Corp. marks another step in the new Republic Steel Corp. organization. F. J. Griffiths, former board chairman of Central Alloy Steel Corp., will head the new research unit as president, and headquarters will be in Massillon, Ohio, where extensive facilities for steel research will be enlarged. Mr. Griffiths, internationally known as an authority on special alloy steels, was largely responsible for the successful introduction in this country of the Krupp steels, Nirosta, Nitralloy and Izett. Engaged in steel making since his sixteenth year, he supervised the first heat of chrome-vanadium steel ever made in an open-hearth furnace. Later developments in special steel practice are traceable to him.

EQUIPMENT AND SUPPLIES

NEW DEVICES DESIGNED FOR CONTROLLING WELL

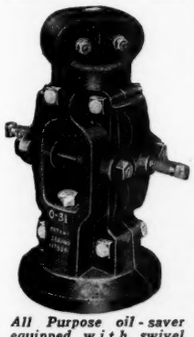
Keeping abreast of the ever increasing production problems growing out of deep drilling with its attendant enormous pressures, gas volume, and oil flow, the Oil Well Improvements Co., Tulsa, has gone into production on its new all-purpose control head equipment.

The all-purpose control head is an innovation in well control equipment, and



All Purpose control head with "set screw" top flange for oil-saver and "lubricating flange" above, which permits use of control head for running tools under heavy flow or gas pressure, as in case of Type X control head. In "lubricating" tools, three joints of casing (never smaller than 10-inch) are used in the top of the control head, and this chamber of casing is closed on top with an "All Purpose" stuffing box. Fittings shown in illustration for by-passing pressure to lubricating chamber are not provided with the control head. Standard lease fittings are used.

its adaptability and interchangeable features are designed to provide economy, safety, and efficient performance. It can be converted into either a "set screw," "latch assembly," or "lubricating in" head by means of interchangeable top flanges. While the head is sold with bottom threaded to casing size and thread desired, bottom flanges are available for changing the thread or reducing to any smaller casing size.



All Purpose oil-saver equipped with swivel roller top to accommodate pull of drilling line, and double packing rubbers which are cross-packed on the line.

All heads up to and including 9-inch outside diameter have the same size oil saver seat, take same size oil saver and lubricating flange to accommodate 10-inch casing for lubricating tools under heavy gas pressure or oil flow. The "lubricating" feature is borrowed from the company's Type X control head used at Lovell, Oklahoma City and the Yates Pool.

With only one control head body and oil saver, the operator can have any type, size, or thread in control head construction from 9-inch outside diameter, down by merely having the necessary top and bottom flanges for changing the head. All heads up to and including 9-inch outside diameter, are oil tested to 3,000 pounds pressure. Double by-pass outlets give the head greater flow line capacity and provide anchor lugs for securing the head.

The All Purpose oil saver is especially made for use in the "All Purpose" control head. It is of extra heavy construction with two sets of rubbers cross-packed on the drilling line, and with swivel roller top to accommodate the pull

All Purpose stuffing box, a split-swage stuffing box, containing rubbers, followers, and set screw for adjustment similar to roller oil-saver. Made for 10-inch casing and 1-inch line.

of the drilling line regardless of the position of the oil saver when secured in the top of the control head. The oil saver body, followers, side plates, set screws, body bolts, and other parts are oversize to insure against high pressures.

The All Purpose stuffing box, for closing the top of the lubricating chamber, is similar to the Type X stuffing box used with the Type X lubricating head, and is standard for 10-inch casing and 1-inch line. Special boxes for other sizes are available on special order.

ENGINES HAVE CUT-OFF OR REVERSING FEATURE

The single and twin-cylinder engines, furnished with adjustable cut-off or reversing feature, manufactured by the Engberg division of the Troy Engine & Machine Co., St. Joseph, Mich., are exciting interest in the oil production and refining fields. The same principle of operation applies to both the adjustable cut-off engines and the reversible engines and to both the single and twin-cylinder types. The design of the control mechanism could be changed readily to suit particular requirements.

The hand lever may be placed in any position on the adjacent quadrant and may be locked in position by means of a spring latch.

For reversing engines the center of the quadrant is the neutral position at which the engines take no steam, and with the lever on one side of the neutral position the engines operate in one direction and with the lever on the other side of the neutral position, the engines operate in the reverse direction. If the reversing feature is not desired, the quadrant can be arranged to cover the proper range of cut-offs for one direction of rotation.

The lever is keyed to the horizontal shaft, on which are mounted two spur pinions, which mesh with two racks that are bolted to a ball-bearing housing. The ball bearing is mounted on a sleeve on the two ends of which are cut out spiral gears. This sleeve is driven by the engine crankshaft through a spline key. Two spiral gears mesh with those of the sleeve and are mounted on pins, on which are mounted the eccentrics.

Changing position of the lever changes the lateral position of the sleeve on the shaft and rotates the pins on which the eccentrics are mounted, changing the position of eccentric, cut-off and stroke of valve.

With the lever in a definite position, there is no relative motion of any of the gears. Those move only when the cut-off is changed or the engines are reversed.

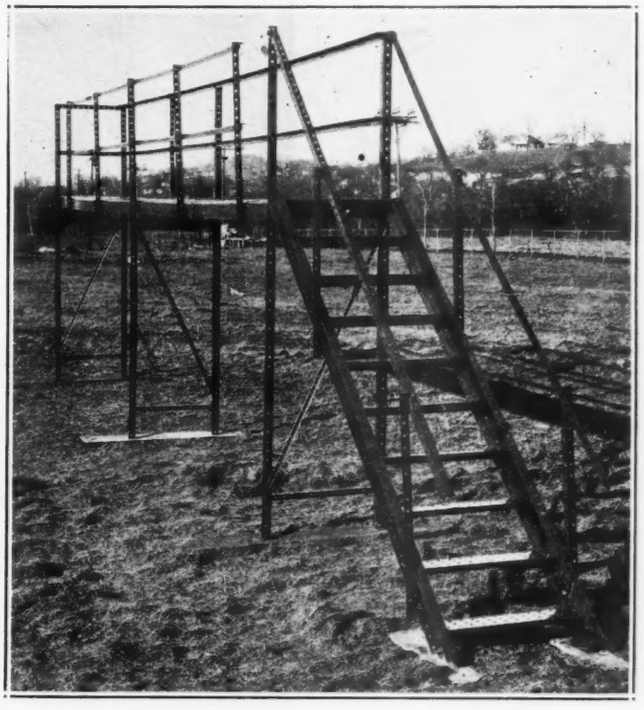
ALL-STEEL WALKWAY EASILY MOVED TO NEW LOCATION

Realizing the need for better constructed, and more permanent walkways and stairways on batteries of storage tanks, Black, Sivalls & Bryson, Inc., with headquarters in Bartlesville, Okla., and branches extending from Okotoks, Alberta, Canada, to Maracaibo, Venezuela, South America, have perfected and are manufacturing walkways and stairways built entirely of steel. This equipment is simple to install and adaptable to any size and combination of tanks. There are only four different kinds of material used in the construction, namely, safety walkway section, angle posts, bracing channels and stair treads.

Safety walkway sections and stair treads are made by using one-half-inch dies and three-eighths-inch punch. This turns up a high burr which makes these walkways safe under severe weather conditions.

All of the holes which may be used in the construction of the walkways are punched on 2-inch centers center to center. It is practical to use these punchings for various fastenings as the occasion may demand. The walkways therefore are adaptable to many conditions.

The walkways are strong and rigid, as shown by the accompanying picture. They are adjustable for use on tank batteries 8 feet high, 16 feet high, or any other height or length. The design of the equipment permits it to be taken down and used again and again without waste of material when the tank battery is moved. The equipment thus will last indefinitely and the fire hazard is eliminated.



BUSINESS NOTES

The Lincoln Electric Co., Cleveland, Ohio, manufacturer of Stable-Arc welders and Linc-Weld motors, has opened new offices in Saginaw, Mich., in charge of J. E. Luter; Fort Wayne, Ind., D. H. Carver, and Oil City, Pa., E. D. Anderson.

The Oil Well Supply Co. has consolidated its Pittsburgh and New York branches of its export department and the office for both is now in the Lincoln Building, 60 East Forty-second Street, New York.

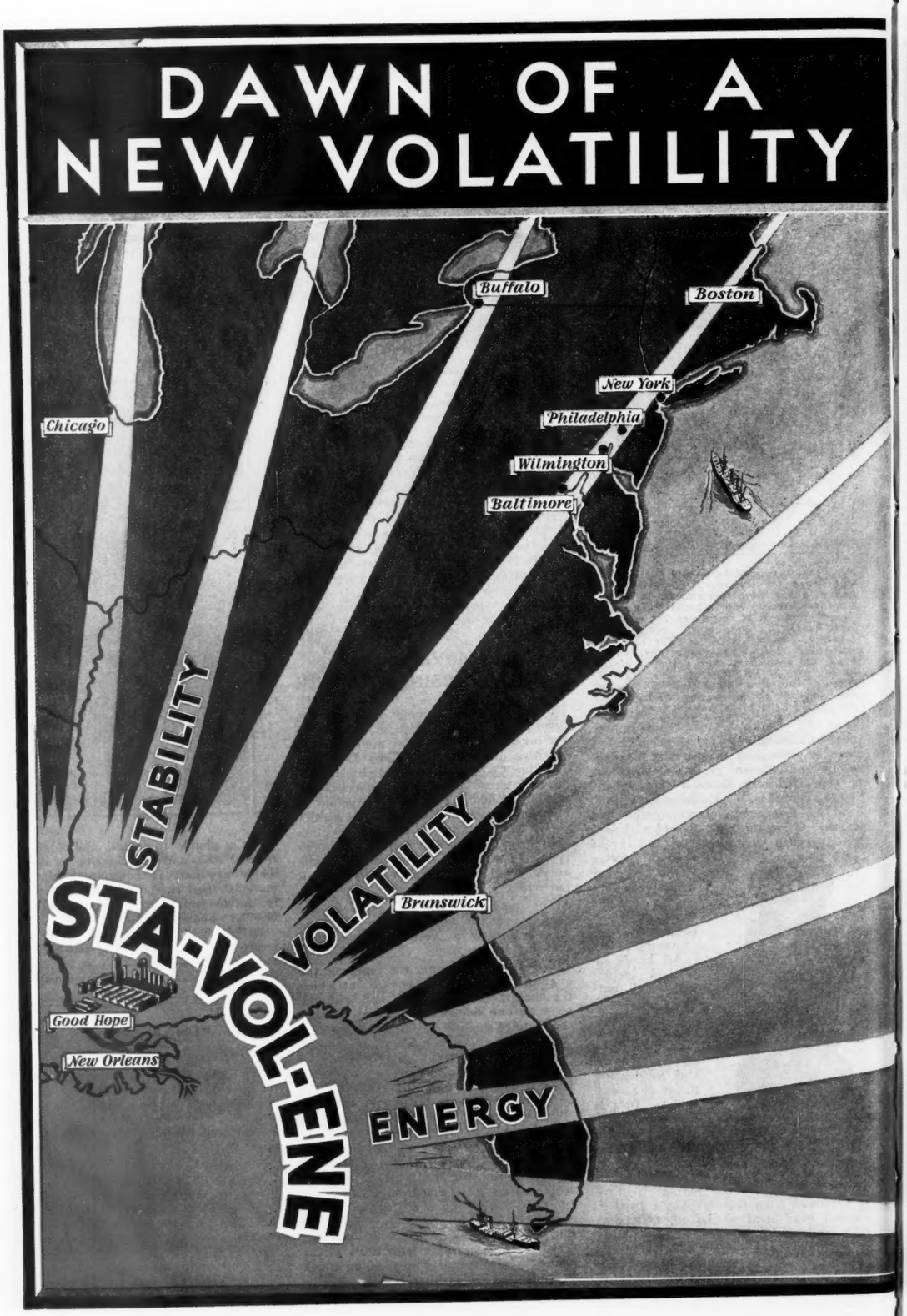
J. D. Stout has been elected vice president of the Terry Steam Turbine Co., Hartford, Conn. Mr. Stout has been associated with the company since 1909, for several years as manager of the New York office.

Net earnings of the Hercules Motors Corp., Canton, Ohio, for 1929 were more than twice those of 1928, according to the annual report of Charles Balough, president. To meet the growing demand for Hercules engines the company enlarged its manufacturing facilities twice during the year and added 75,000 square feet of roofed-over space to the plant.

The Young Radiator Co., Racine, Wis., manufacturer of engine-cooling radiators for power units, trucks, tractors, industrial machinery, heating units for factories and industrial heating, reports a gain for the first three months of 1930 over the same period for 1929.

NEW LABORATORY BUILDING

Research is playing a more important part in the development of the aluminum industry each year. The research department of the Aluminum Co. of America, has grown to such an extent that it was necessary to provide a new laboratory building. This building has just been completed and equipped with modern apparatus of all types. The new building is in New Kensington, Pa., just outside of Pittsburgh.


DAWN OF A NEW VOLATILITY
Buffalo
Boston
New York
Philadelphia
Chicago
Wilmington
Baltimore
STABILITY
VOLATILITY
Brunswick
STA-VOL-ENE
Good Hope
New Orleans
ENERGY

STA-VOL-ENE

STABILITY ◆ VOLATILITY ◆ ENERGY

A PRODUCT OF NATURAL GASOLENE

TRADE MARK REG

CONCENTRATED

STAbility - VOLatility - ENErgy

IN

STA - VOL - ENE

(A product of Natural Gasolene)

STAVOLENE--Due to our special manufacturing processes has:

STAbility--Distillation recovery almost equal to ordinary low gravity refinery gasolenes - - - This means extremely low shipping and handling losses.

VOLatility--Extremely high gravity with concentrated volatility - - - Compared with ordinary high gravity natural gasolene almost twice as much STAVOLENE boils between 100°F and 212°F.

ENErgy--Due to complete combustion STAVOLENE produces maximum power and efficiency.

STAVOLENE--Retains all good qualities of natural gasolene and eliminates all bad properties. It gives refinery gasolene needed volatility and other virtues - - - yet no vapor lock. It is the finest product available for blending - - - yet it will produce a saving in your final cost.

STAVOLENE--Can now be delivered promptly. Our large and completely equipped processing plant and terminal facilities at Good Hope, La. (New Orleans Port) with wharfage accomodating the largest vessels enables us to supply STAVOLENE to the export and coastwise trade in any quantity:

"From a Car to a Cargo"

Write or wire for further information. Cable address "STAVOLENE," Tulsa

HANLON-BUCHANAN, INC.

GENERAL OFFICES – TULSA, OKLAHOMA

Technical Questions Answered

BY CHARLES K. FRANCIS, PH.D., TECHNICAL EDITOR

This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with the marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible so as to assure a satisfactory answer.

All inquiries should be signed and if other than the given initials are to be used please indicate the desired letters.

Questions involving patented processes, intricate formulas and calculations and estimates of costs, for obvious reasons, cannot be answered. The replies will appear on this page within a reasonable time.

BARBEY IXOMETER AND SAYBOLT UNIVERSAL VISCOSITIES

I believe it would be of interest if you would describe the Barbey Ixometer and conversion table between the reading of this instrument and the Saybolt Universal viscosimeter. I am personally interested in this information.—H. T. B.

The Barbey Ixometer, an instrument invented by M. L. Barbey, is the official instrument of France for the determination of the fluidity of lubricating oils. The essential features of construction and operation are: The orifice is a brass tube 5 mm. diameter and 20 cm. long in which is centered a steel rod 4 mm. in diameter. An annular space 0.5 mm. by 20 cm. results from this arrangement and is the channel through which the oil being tested flows. This tube forms one leg of a U-tube. The other leg has at its top a brass reservoir fitted with an overflow tube for maintaining a constant level of liquid with which it is filled. The U-tube is arranged in a brass container, which serves as a water or oil bath, so that it is immersed in the liquid contained therin to a point about 3 cm. below the top. The bath is provided with an opening at the top for the insertion of a thermometer. A burner is provided for heating the bath. A swinging clamp is provided for holding both the brass vessel for receiving waste oil and the graduated glass receiver for measuring the quantity of oil passing through the channel, or orifice, in the determination of its fluidity.

Four graduated glass receivers are furnished; the capacities are 30, 60, 90 and 120 cc., and are calibrated to measure Barbey fluidities of 0-180°, 180-360°, 360-540° and 540-720°, respectively. A volume of one-sixth cc. corresponds to 1° Barbey as actually measured during the 10-minute period of the determination, although the significance of the test is, that, the number of cc. of an oil equal to its Barbey fluidity in degrees will flow through the instrument in one hour at the temperature of the test. The instrument is intended for use at any temperature between 0° and 100° C. A suitable oil should be used for the bath liquid at all temperatures above 80° C.

When making a determination the temperature of the bath is brought to the temperature of the test and then oil is permitted to flow from the upper container into the reservoir connected with the orifice tube so that it falls from the orifice tube at the rate of one drop a second. When all air has been displaced the steel rod is slowly lowered into the tube with a twisting motion until the top of the rod is even with the mark on the orifice tube. Then the rate of flow is again adjusted into the constant level reservoir so that the oil overflows from the side tube at the rate of about one drop each second. The bath is then maintained at the desired temperature for 10 minutes, the oil being allowed, meanwhile, to flow from the orifice under a constant head. At the end of this time the proper graduated receiver is swung under the oil stream; a stopwatch being started at the same time. At the end of exactly 10 more minutes the receiver is removed and the test discontinued. The oil in the receiver is measured at the temperature of the test and the reading reported as fluidity of the oil, in degrees Barbey at the temperature of the test.

This instrument is illustrated in Handbook of the Petroleum Industry, by Day, Volume 1, Page 643.

A viscosimeter conversion chart was published by The Texas Company, May, 1921; the Saybolt Universal-Barbey approximate equivalents as indicated on this chart are tabulated below.

Equivalent viscosities at the same temperature for the instruments named:

Saybolt Universal	Barbey Ixometer
80	420
90	360
100	320
110	295
120	265
130	240
140	220
150	205
160	195
170	180
180	180

COPPER COMPOUNDS FOR TREATING

The suggestion has been made that some form of copper should give good results for treating the high sulphur distillates obtained from the sour crudes of this district and I would appreciate any reliable references you may have on the subject.—T. H. P.

There were several papers presented before the meeting of the American Chemical Society at Atlanta early in April, by E. E. Reid and associates, that may be of assistance. The papers will probably be published within the year and the information below is from the abstracts.

The Behavior of Mercaptans with Copper Sulphide. K. H. Slagel and E. Emmet Reid.—The primary mercaptans from methyl to nonyl are largely removed from their solutions in benzene by shaking with copper sulphide. The adsorption increases rapidly from methyl to butyl, is greatest from butyl to heptyl, and falls off with octyl and nonyl. Copper sulphides removes these mercaptans much better than does copper powder. Many other adsorbents have been studied. A dilute solution of a secondary mercaptan dissolves copper sulphide to form an orange-red solution. Copper is even more soluble than the sulphide in such a mercaptan solution, approximately one atom of copper dissolving for each molecule of secondary mercaptan present. The nature of the products obtained is being investigated.

The Reactions of Some Mercaptans with Alkaline Sodium Plumbite Solutions. Emil Ott and E. Emmet Reid.—It has been found that both basic and neutral lead mercaptides are formed when benzene solutions of the mercaptans are shaken with "doctor" solution. It has been found that the formation of lead mercaptides is incomplete in the presence of dilute acids. In some cases it has been possible to isolate the basic lead mercaptides practically free from the neutral salt. The lead mercaptides which have been studied behave like organic compounds and are mostly soluble in organic solvents.

The Partition of Mercaptans Between Benzene and Caustic Soda Solutions. L. M. Ellis, Jr., and E. Emmet Reid.—The primary mercaptans from methyl to nonyl and the secondary from isopropyl to secnonyl have been partitioned between benzene and different concentrations of caustic soda solution. Methyl and ethyl mercaptans can be efficiently removed from hydrocarbon solution by shawing with caustic soda solution, but the percentage so removed falls off rapidly as the molecular weight of the mercaptan increases. Only traces of the higher mercaptans are taken out by caustic soda wash. Benzene has been used as the solvent for the sake of reproducibility. A part of the experiments have been repeated with pure heptane and similar results obtained.

HEATING STATIONS AND CRACKING

We have a 21 gravity, viscous, asphalt oil; viscosities 1,910 Saybolt at 40° F.; 429 at 80° F., and 240 at 100° F. The fields are some distance from the railroad and to handle the crude successfully through a pipe line requires oil heaters at intervals to lower the viscosity so that it can be handled with minimum pressure and least number of stations. I am wondering if you know of any process whereby the crude can be cracked in regular cracking stills located in the field, to permanently lower the viscosity without removing either the light or heavy ends?—L. L.

There are a number of crude oils that contain large quantities of wax or asphaltic substances which do not flow easily even at somewhat elevated temperatures. The thick oil at Grosny, Russia, contains so much wax and is so thick that it cannot be pumped during the warm summer season. Certain Mexican oils cannot be handled any great distance through pipe lines because of the high percentage of asphalt. Similar oils are produced in Wyoming and Montana.

The most practical, and probably the most economical, means for handling such oils through a pipe line is by the installation of heater stations. Sometimes it is possible to place a steam or hot-water line inside of the oil pipe. Such systems are usually very satisfactory, but the pipe should be buried deep enough to insure fairly good protection from low atmospheric temperatures.

The installation of a suitable cracking unit may alter the composition of the oil so that pumping or flowing conditions would be improved, but the cost would in most cases be greater than that for suitable heating stations. Cracking of this character would have to be quite different from that practiced in the refinery. The refinery operation involves the separation of the light material and in some processes there is a heavy residue which could not be handled in a pipe line. It is questionable if the cracking of the oil, on a mild scale, would correct the trouble. However, if the process were continued to include a complete separation of the lighter products and a residue of heavy fuel oil or coke, the distillate might be in a satisfactory condition for transportation through a pipe line to the refinery for more complete refining. A very careful survey would be necessary to reach a definite conclusion.

BUNKER FUEL OIL

Will you kindly inform me what Bunker Oil is and how I may secure about a gallon of such oil?—L. S.

There are three grades of Bunker Fuel-oil described as A, B, and C, in Technical Paper 323-B of the Bureau of Mines.

A—The grade of fuel oil used by the United States Government and its agencies where a low viscosity oil is required. This oil may be used in Diesel engines. A pure hydrocarbon oil, free from grit, acid and other foreign matters is required.

All three grades are tested for flashpoint in the Pensky-Martens closed instrument. The viscosities are based on determinations by the Furol Saybolt Viscosimeter.

Flashpoint—Not below 150° F. In case of oils having viscosity greater than 30 seconds at 150° F., the flashpoint shall not be below the temperature at which the oil has a viscosity of 30 seconds.

Viscosity—Not above 100 seconds at 77° F.

Water and Sediment—Not above 1.0 per cent.

B—This grade is used where a more viscous oil than "A" can be used. The oil may be used in Diesel engines of a type adapted to an oil of medium viscosity.

Flashpoint—Not below 150° F.

Viscosity—Not above 100 seconds at 122° F.

Water and Sediment—Combined quantity of water and sediment shall not exceed 1.0 per cent.

C—This fuel is required where a high viscosity oil is satisfactory. This oil may be used in Diesel engines of a type adapted to an oil of high viscosity.

Flashpoint—Not below 150° F.

Viscosity—Not above 300 seconds at 122° F.

Water and Sediment—Sediment shall not exceed 0.25 per cent and total water plus sediment shall not exceed 2 per cent. Deduction will be made for all water plus sediment in excess of 1 per cent.

The agents of the larger oil companies, several of which are represented in your city, will be glad to arrange with you for samples of these oils.

FRENCH WAR OFFICE LUBRICATING OIL

I wish to obtain a specification illustrating the practice of some foreign agents for lubricating oil at several viscosities?—T. H. D.

The French War Office has published a specification covering lubricating for the ammunition department containing viscosity specifications at three temperatures:

The oils must be made exclusively from petroleum without the addition of light oils, coal oils, resin oil, animal or vegetable oils. No sediment shall form after standing 48 hours. No alteration or desiccative action shall be detected after exposure to the air for two weeks in brass cups, or after continuous agitation for 48 hours. Mechanical shaking of a half-filled bottle of oil is suggested for making the test.

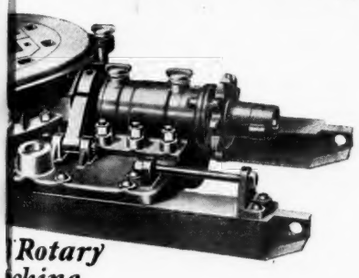
Tar—Not above 10 per cent.

Viscosity—Barbey ixometer, not above 60 at 35° C., 130 at 50° C., 700 at 100° C.

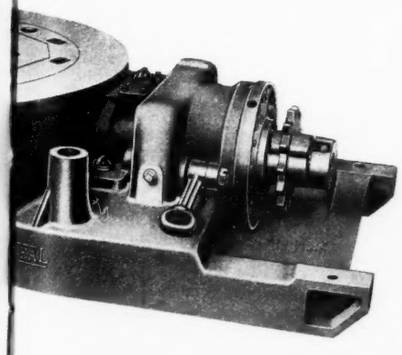
Flashpoint—Must be above 170° C.

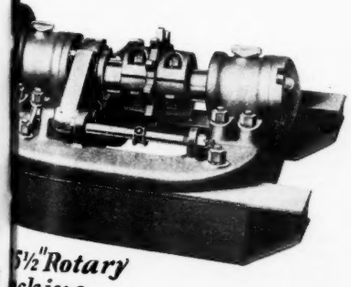
A practical test in bearings must show good lubrication with no evidence of corrosion.

AL QUIPMENT

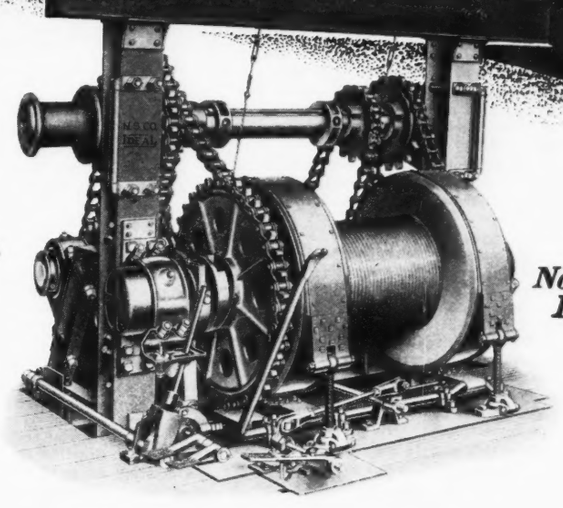


Rotary chine





5½" Rotary chine



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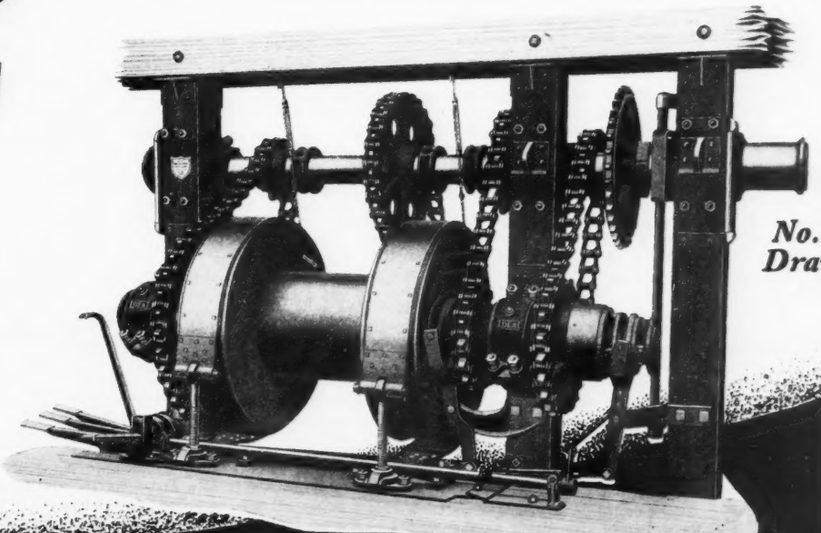

No. 7½ -24 Draw Works

PPLY COMPANIES

Field Problems and Their Solution

EDITED BY THOMAS F. SMILEY

In order that men connected with the drilling, producing and transporting branches of the petroleum industry may procure quickly a solution of many problems confronting them from time to time in their work, The Oil and Gas Journal has arranged with leading engineers and other recognized authorities to answer questions submitted by readers of this publication pertaining to the work of drilling and producing crude oil and transporting this product.

Everyone is invited to submit questions freely. These questions will be submitted to proper authorities by Mr. Smiley, who edits the page, and answers, based on the best available information, will be published. Each question should give as much detail as possible, especially where it relates to matters where depths of sands, types of sands and operations on adjoining properties would have a bearing on the problem involved. The source of all questions will be considered as confidential and only initials will be published in connection with the question.

In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or practices which are improvements.

In case an immediate answer is important, one will be given by mail if the writer requests it.

THERMIT WELDING PROCESS

Welding methods interest me and I have read the articles that have been printed from time to time in your magazine on this subject. I notice a reference to Thermit welding. Will you tell me something about this process—T. S. G.

The Thermit process is described at length in the Welding Encyclopedia, published by the Welding Engineer Publishing Co., Chicago, and since you say this whole subject is of interest to you, it is suggested that you might do well to obtain this volume. W. H. Hulbert says in the encyclopedia that the Thermit welding process is based on a chemical reaction between aluminum and iron oxide. Such a mixture (Thermit) can be ignited when brought to a high temperature in one spot and the reaction when so started will continue throughout the rest of the mass. The result is due to the aluminum combining with the oxygen of the iron oxide to form aluminum oxide (slag) in a highly superheated molten state while the iron is set free and is produced as liquid steel, also highly superheated.

The temperature of this reaction is not measurable by any mechanical instrument, but it has been determined theoretically by metallurgists as approximately 5,000° F., or almost twice the temperature of ordinary liquid steel. It can be seen readily that if steel at this high temperature be poured around and between two iron or steel sections, which previously have been heated to red heat, they will become dissolved and will amalgamate with the Thermit steel, so that finally the entire mass will cool down to form a single homogeneous section.

There is nothing explosive about the Thermit reaction and no danger is incurred in storing and handling the material, owing to the fact that it requires the temperature of liquid steel to ignite it.

SALT IS DISCOLORED BY OIL

We have drilled a well in Michigan to a total depth of 4,800 feet. At 3,100 to 3,350 feet we went through plain salt. We then had a lime break and at 3,600 to 4,000 feet we went through solid black salt. It was saturated with oil and the odor was very pronounced. Upon washing the salt out it assumed the same form as that of the upper strata. The drillers expressed their opinion that it was the first time they had ever seen or heard of saturated salt.

A well drilled 8 miles east encountered salt, but not the saturation. A well drilled 10 miles to the west missed the salt entirely. Has a condition, to your knowledge, like this been encountered in any other fields? Would this saturation in the salt mean that there is a pool of oil in the near vicinity and warrant drilling an offset well?

It is located on very favorable structure and had a good show of gas at 1,300 feet that probably would have made 500,000 feet of gas. We started with 10-inch drive to 240 feet, 8-inch to 400 feet and 6⅝-inch to 650 feet. We then set 5 3/16-inch at 2,505 feet to shut off water, and are still drilling at 4,800 feet without water and no additional casing has been used.

I would appreciate an explanation of this situation and the possibilities of production under the conditions described.—W. G.

The condition you describe is unique so far as has been ascertained by discussing it with geologists. Salt is crystalline and normally considered nonporous. So it is hard to explain how oil could be in this salt stratum. The only explanation this department can suggest is that the salt stratum is badly shattered in place and oil may have migrated into it from some near-by saturated sands or lime formation.

That this salt is only coated with oil and not saturated seems evident by your statement that "upon washing the salt it assumed the same form as that of the upper strata." If the salt crystals were saturated with oil it seems probable that you would have dissolved them before all of the oil could have been washed out with water.

As to whether it is advisable to drill another well upon this property in hope of finding a saturated oil sand, it is believed that you had best consult some competent geologist familiar with Michigan before investing more money in such a venture.

There is a possibility that the salt crystals might have been contaminated with oil after their removal from the well or foreign oil in some way might have got into the well and it would therefore be essential that the oil itself be carefully examined. For this purpose a large amount of cuttings should be obtained.

You do not state how much of this oil-soaked salt was recovered or the estimated thickness of the formation and this would have an important bearing on the conditions.

It seems that your best policy will be to employ a good geologist familiar with Michigan to give you a report on this lease before attempting another well and be certain that he is supplied with reliable information and has opportunity to examine these salt cuttings and satisfy himself as to the mode of occurrence of this oil.

This department would be glad to know what you find out about this problem and your further action, for the condition you describe and its cause are of general interest.

BRAKE-FLANGE RIMS BURST

We have had two serious accidents in the last year, one of them just last week, resulting from brake-flange rims bursting and hitting men on the derrick floor during the drilling of a well by rotary. I believe we have taken as much care as is usually taken to avoid accidents. Can you suggest any way to reduce the danger of accident from this source?—D. E. E.

Bursting of rotary brake-flanges has caused many accidents, some of them attended by loss of life. A large percentage of the accidents were in California oil fields. As you doubtless know, the bursting of rotary brake-flanges usually results from their becoming weak through the intense heat created by throwing on the brakes to check the swift descent of the drill stem or string of pipe. This heat produces stresses that expand the rim.

Other causes contributing to such accidents were reported by engineers of the California industrial accident commission to include: Riveting the brake-flange to the hoisting drum at the derrick instead of in the shop; loose or weak rivets; unequal contraction and expansion of the brake-flange; crystallization; unequal pressure of the brake-band; too sudden application of the brake; faulty construction and defective materials.

Examination of several shattered brake-flange rims showed that they had become weakened through alternate expansion and contraction. At first these temperature stresses produce invisible hair checks in the rim of the brake-flange. These checks become larger with each change of temperature until they are so large and there are so many of them that the weakened flange fails. It will be noted that brake-flange rims that have done long service burst oftener than those in use a short time only.

Precautionary measures can be taken. Drillers should inspect the brake-flange rims frequently and replace those revealing the smallest flaw or crack. Any with loose or weak rivets should be sent to the repair shop, for repairs made in the derrick cannot be of the highest grade. Brake-bands should be adjusted carefully to pull equally on the rims and care should be taken to avoid applying the brake suddenly to a fast-revolving rotary drum. Excessive speed in lowering drill pipe, casing and tubing should be discouraged and the centrifugal force of the whirling brake-flange should be kept to a safe limit.

You will obtain valuable information along this line by sending to the Superintendent of Documents, Government Printing Office, Washington, D. C., for "Mechanical Safeguards in Rotary Drilling," which is Technical Paper 369. Its price is 10 cents.

WHY WAS IT CALLED THAT?

OIL SMELLER

Among strange ways by which some persons of nontechnical training have professed ability to tell where oil strata lay underground and to show the right spot for drilling, that of relying on the sense of smell should have a prominent place. "Oil smeller" was the obvious name for the man who performed geological explorations with his nose. By extension the term came to be applied to persons who asserted they could find oil by other queer methods not recognized by science.

WHAT PREVENTS EXPLOSION?

Will you please tell me why oil or resin poured in a wet hole will keep hot babbitt metal from exploding?—W. M. W.

This interesting question is not treated in any literature at hand, but information obtained from technical men provides at least a part answer.

The moisture on the surface upon which the hot babbitt is to be poured would be converted into live steam if the babbitt were to come in direct contact with the moisture and this steam would cause the metal to fly away from the bearing, or explode. This reaction is really due to rapid transmission of heat from the hot babbitt, which has a melting point of from 365° to 476° F., to the water film on the bearing.

Kent's Mechanical Engineers Handbook states that "conductivity is the quantity of heat transmitted through a unit thickness of material per unit of area in a unit of time. In the English system of measures, the conductivity is usually expressed in B.t.u. per hour per square foot per inch of thickness. Conductivity is usually expressed by the symbol K."

Kent gives thermal conductivity of water at 77° F. as 3.9467 and that of petroleum at 55.4° F. as 1.0302. These are K values expressed in B.t.u. per square foot per inch thickness per degree Fahrenheit difference in temperature.

This would indicate that with babbitt at approximately 400° F. temperature and iron or steel at room temperature of about 70° F. there would be a difference of 330° F. between the two metals that must be dissipated in some way and if there is a film of water between the two metal surfaces steam would be generated quickly because this film of water has a low K value.

When the oil is used it will spread over the water in a thin film, but evidently thick enough to increase this K value from 1.0302 to 3.9467 or about 66 per cent and this retards the flow of heat from the hot babbitt to the water and slows up the rate of heat transmission so that instead of turning to steam instantly and producing an explosion the water is heated much more gradually and no explosion occurs.

It is true that we are dealing with a very thin film of oil but under usual shop practice we are also pouring this hot babbitt on a surface that would be free of all water except for a thin film that might have gathered there by condensation, so the relative thickness of the oil and water films is much the same.

If much water is present in the bearing where the babbitt is to be poured it seems probable the explosion might still take place or the steam would be entrapped between the surface of the babbitt and iron or steel forming the bearing base and the job would not be satisfactory.

The answer to your problem therefore seems to be found in the relative thermal conductivity of oil and water and it is presumed that resin can be classed with oil in this case for the K value of turpentine is even lower than that of petroleum for it is only 0.9432.

In this connection attention might be called to a practice in forge shops of pouring a layer of oil about an inch thick over water in the "quench tank," used in tempering steel, which would crack or check if dipped directly into the water while at high temperature. The conductivity of oil being less than that of water has the effect of preventing too sudden cooling of the steel.

MEN KNOWN IN OILDOM

Howell C. Cooper

Howell C. Cooper, who if precedent is followed, will be the new chairman of the Natural Gas Department of the American Gas Association, was born and reared in Oil City, Pa., attending school there and in 1891 entering the employ of the Standard Oil Company of New Jersey in its National Transit Company shops. For seven years the young man worked in the National Transit shops and then he enlisted in the United States Navy as an engineer, continuing in the naval service till 1904. In that year he re-entered the employ of the National Transit Company and was transferred to the Prairie Oil & Gas Company, then a Standard subsidiary, as division engineer in building the first pipe line from the oil fields in Kansas to Chicago.

In 1906 Mr. Cooper superintended construction of the Ohio Oil Company's lines from the Casey oil field to the pipe lines at Preble, Ind. In 1908 he was in charge of building the pipe lines of the Tuscarora Oil Company, beginning near the Beaver River in western Pennsylvania and extending eastward across that State to Center Bridge on the Delaware River.

Mr. Cooper's connection with the Hope Natural Gas Company and the Peoples Natural Gas Company, subsidiaries of the Standard Oil Company of New Jersey, with headquarters in Pittsburgh, Pa., began in 1910. After serving as an engineer for about two years he was made general superintendent of the Hope company, with headquarters in Clarksburg, W. Va. Six years later, in 1918, he was placed in charge of all engineering matters for the Hope, Peoples and other gas companies in the Standard Oil Company group. He has assisted generally in all of the recent natural gas enterprises of the parent company.

PERSONAL PARAGRAPHS

G. H. O'Donnell was in Denver, Colo., for a few days on business for Cranfill & Reynolds, Inc.

* * *

Merle E. Poe, of Findlay, Ohio, general counsel for Ohio Oil Company, spent several days in Casper, Wyo., recently.

* * *

A. O. Olson, of Noble & Olson, and his pilot, R. C. Reeves, flew to Casper, Wyo., from Tulsa in six and one-half hours.

* * *

C. E. Crawley, executive vice president of the Sinclair Consolidated Oil Corporation with headquarters in New York, is a visitor in Tulsa.

* * *

T. B. Slick, Tulsa, made a trip to Texas in the interest of a deal pertaining to leases near the recent new gusher at Graham, Tex., in Young County.

E. M. Hinkle, traffic manager of the Louisiana Oil & Refining Company, Shreveport, La., spent several days in Houston, Tex.

* * *

T. K. Smith, president of the Smith Separator Company, is making a trip through West Texas, and to Corpus Christi this week.

* * *

James Peat, of Petrolia, Ontario, the oldest surviving pioneer of the Ontario oil fields, celebrated his eighty-eighth birthday on April 16.

* * *

B. R. Muirhead, formerly assistant treasurer of Arkansas Natural Gas Corporation, has been promoted to treasurer of that organization.

* * *

Gillette Hill, vice president of the Independent Oil & Gas Company, Tulsa, made a trip to Fort Worth, Tex., on business during the week.

* * *

K. C. Pardee, of Billings, Mont., in charge of operations for the Texas Production Company in Wyoming and Montana, was in Casper for a few days.

* * *

Burt E. Hull, president of the Texas Pipe Line Company, Houston, Tex., has been elected president of the Alumni Association of the Texas A. and M. College.

* * *

F. G. Shreves, of Okmulgee, Okla., president of the Denver Producing & Refining Company, will return early in May from a four months' cruise of the world.

* * *

Dr. A. E. Dunstan, F.I.C., has been re-elected president of the British Institution of Petroleum Technologists, London, England, for a second year of office.

* * *

Vern Dumas, president of the Apex Petroleum Corporation and several other progressive California companies, has returned to Los Angeles from Fort Worth, Tex.

* * *

Wirt Franklin was on the program of the Southwest Foreign Trade Convention at Houston, Tex., to deliver an address on "Southwestern Oil and World Powers."

* * *

James A. Talbot, chairman of the board of the Richfield Oil Company, has been re-elected president of the Universal Consolidated Oil Company at the annual meeting.

* * *

Frank W. DeWolf, Houston, Tex., vice president and general manager of the Louisiana Land & Exploration Company, has returned from an extended business trip in the East.

* * *

Frank Buttram, president of the Buttram Petroleum Company, Oklahoma City, Okla., was among those attending the Southwest Foreign Trade Convention at Houston, Tex.

* * *

Jess Scarbrough, head of the land department of the Mid-Continent Petroleum Corporation, Tulsa, has been spending some time in Dallas, and Fort Worth, Tex., on company business.

* * *

John Braybrook, formerly of Petrolia, Ontario, who has been employed in the Turner Valley Field, left recently to join the International Petroleum Company staff at El Centro, Colombia.

* * *

C. B. Edington, president of the Edington Gasoline Refining Company and co-partner of the Edington Witz Refining Company, has returned to Los Angeles following a business trip to Chicago.

* * *

A. E. Humphreys, Denver, Colo., president of the Humphreys Corporation, Houston, Tex., visited the offices of the company at the latter city. P. C. Murphy is general manager of the company at Houston.

* * *

James Anderson, vice president of the Humble Oil & Refining Company, Houston, Tex.; R. V. Hanrahan, president, and J. A. Neath, vice president, of the Humble Pipe Line Company, visited the Van Field, Van Zandt County, looking over the new pipe line being laid for the Pure Oil Company.

Ira G. Yates, owner of the ranch upon which the Yates Pool is located in Pecos County, Texas, is now building a home on a ranch he recently purchased about 16 miles north of San Antonio, Tex.

* * *

A. Frank Dabell, T. H. R. Garrett and Dr. F. B. Thole have been re-elected members of the Council of the British Institution of Petroleum Technologists, and Dr. F. H. Garner has been added to the council.

* * *

Mrs. Grover Crosby returned recently to Petrolia, Ontario, from Colombia, traveling from Cuba to Miami by airplane. Mr. Crosby, who is on the International Petroleum Company staff, will return in July.

* * *

John D. Clark, who resigned the presidency of the Midwest Refining Company in 1928 to study economics at Johns Hopkins University, has been appointed to a professorship in the University of Denver.

* * *

F. H. Leonard, of St. Louis, Mo., was elected president of the Petroleum Industry Electrical Association at the third annual convention at Dallas, Tex. St. Louis was selected as the next convention city.

* * *

Fumio Ochiai, of Kobe, Japan, has been in Bradford, Pa., for the past week, studying the flooding developments in the oil fields. Mr. Ochiai is chief engineer of Osaka Shoshen Kaisha, which is interested in Asiatic oil fields.

* * *

Word has reached Tulsa that C. D. Watson, chief engineer for the Carter Oil Company, reached Batavia, Java, Dutch East Indies, on March 15, several days ahead of his schedule. He expects to remain there two or three months.

* * *

Appointment of Claud Wild, secretary of the San Angelo, Tex., Chamber of Commerce, as executive vice president of the Independent Petroleum Association of Texas was announced by Charles L. Morgan, vice president and secretary of the association.

* *

Stephen Rybar, director of the physics department of the University of Budapest, and designer of the Eotvos-Rybar torsion balance, and N. Wolff, chief designer of the Suss firm building the same instrument, are in Houston, Tex., on a business visit to George Steiner.

* * *

C. P. Clark, vice president of Clark Brothers, Olean, N. Y., and his wife, were guests of D. K. Hutchcraft at his new home in Tulsa last week. Mr. Clark has been on an extended tour through Texas and Oklahoma in the interest of his company and returned to Olean from Tulsa.

* * *

Henry Hummel, of San Antonio, Tex., has succeeded Alexander Milyko as district geologist for the Arkansas Fuel Oil Company at San Angelo, Tex. Mr. Hummel was formerly with the White Eagle Oil & Refining Company. J. N. Sandlin is district land man and Frank Bowser is scout for the company at San Angelo.

* * *

R. R. Leonard, assistant secretary for the American Society of Mechanical Engineers, with headquarters in Chicago, is now in the Mid-Continent area carrying on the work started by Ernest Hartford in organizing the petroleum division. Mr. Leonard is making his headquarters in Tulsa but visiting adjoining fields and cities.

* * *

Floyd C. Brown, assistant manager of the Empire Companies, Bartlesville, has established his offices at 60 Wall Street, New York, where it is understood he will direct the construction and operation of the big natural gas line to be constructed from the Texas Panhandle to Chicago. Offices also probably will be established in Chicago.

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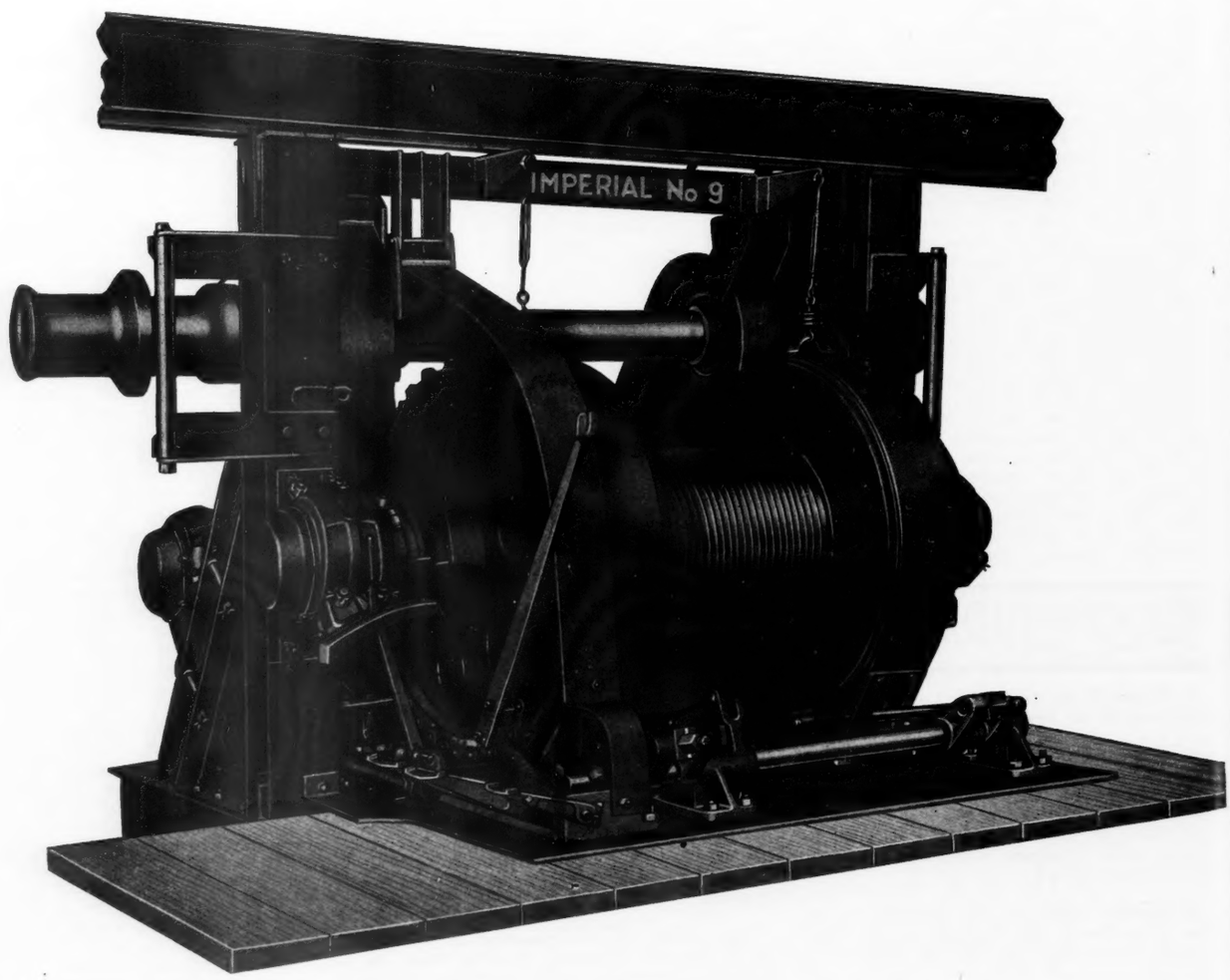
R. J. Eiche, formerly an executive of the Specialty Oil Tool Company, of Los Angeles, Calif., is now associated with the oil well division of the American Steel Export Company, of New York. Mr. Eiche is sailing for South America where he will make an extensive survey covering all oil-producing countries, after which he will open a European office for the company in London.

Announcing the Improvement in ever offered to



WILDCAT OPERATIONS IN LOUISIANA-ARKANSAS

(Continued from Page 46)

L. A. Crump's No. 1 Harris, 300 ft. N, 300 ft. E, SW cor. NW SE, Sec. 11-13-14.....O.W.D.D; derrick; T.D. 3,140 ft.
Bud Harrell's No. 1 Horton, 450 ft. E, 150 ft. N, SW cor., Sec. 4-11-11.....Rig up.
H. L. Hunt's No. 1 Furman, Sec. 5-14-13.....Derrick.
Ark.-La. P. L. Co.'s (was Loring Oil Co.'s) No. 1 Johnson, 300 ft. S, 300 ft. W, NE cor., Sec. 7-11-13.....Cmtd. 7-in. 2,930 ft; T.D. 3,054 ft.
R. O. Roy's No. 1 Nelson, 660 ft. S, 660 ft. E, NW cor., Sec. 36-15-13.....Rig up.

FRANKLIN PARISH

Davis et al's No. 1 Moore, 600 ft. W, 200 ft. S, NE cor., Sec. 12-11-6.....S.D. 1,430 ft.
Evansville Inv. Co.'s No. 1 W. B. Welch, 945 ft. E, 511 ft. N, SW cor., Sec. 2-14-8.....Drlg. shale and boulders 4,037 ft.
Franklin O. & G. Co.'s No. 1 T. J. O'Brien, 300 ft. N, 300 ft. E, SW cor. NW, Sec. 17-15-9.....S.D; repairs; 3,200 ft.

JACKSON PARISH

El Dorado Chief O. & G. Co.'s No. 1 Sou. Advance Paper Bag Co., 225 ft. N, 275 ft. E, SW cor. SW NE, Sec. 35-15-4.....Location.

NATCHITOCHES PARISH

S. D. McDaniel's No. 2 Clark & Morse, 800 ft. E, 350 ft. N, C, Sec. 23-5-6.....Tested 1,000,000 ft. gas and S.W. 3 ft; S.D. for orders; T.D. 2,526 ft.
Robeline O. & G. Co.'s No. 1 Winn, 558 ft. N, 348 ft. E. SW cor. SE, Sec. 7-8-9.....S.D. 1,600 ft.

RAPIDES PARISH

Ayers Bros.' No. 1 Wickliff, 2,790 ft. N, 150 ft. E, SW cor., Sec. 9-5n-2e.....S.D. for fuel 2,650 ft.

RED RIVER PARISH

W. D. Ball's No. 1 Krumholtz, 660 ft. S, 660 ft. E, NW cor., Sec. 32-14-10.....Cmtd. 6⅝-in. 1,682 ft; T.D. 1,700 ft.
E. C. Lucas' No. 1 La. Pecan Co., Sec. 26-13-11.....Derrick.

RICHLAND PARISH

Austin & McDonald's No. 1 Hunt, 594 ft. N, 660 ft. E, SW cor., Sec. 13-17-5.....Derrick.
Austin & McDonald's No. 2 Millsaps, SW cor., Sec. 17-17-6.....Waiting orders; T.D. 2,657 ft.
Austin & McDonald's No. 3 Millsaps, 1,980 ft. S, 660 ft. E, NW cor., Sec. 16-17-6.....Tested S.W; W.O. 2,477 ft.
Austin & McDonald's No. 4 Millsaps, NW cor., Sec. 16-17-6.....Location.
Austin & McDonald's No. 5 Millsaps, 2,640 ft. N, 1,320 ft. W, SE cor., Sec. 8-17-6.....Derrick.
W. C. Feazel's No. 1 Landrum, 620 ft. N, 4,573 ft. E, SW cor., Sec. 6-16-7.....Derrick.

SABINE PARISH

Bridges-Clark Oil Co.'s No. 1 Cook, 150 ft. S, 200 ft. W, NE cor. NW NW, Sec. 3-9-12.....Set 6⅝-in. 3,274 ft; T.D. 3,306 ft.
Longoria et al's No. 1 Belton, 330 ft. S, 330 ft. E. C, NE, Sec. 31-9-13.....Rig up.
Loring Oil Co.'s No. 1 Peavy-Wilson Lbr. Co., 200 ft. S, 330 ft. W, NE cor. SW NE, Sec. 21-6-13.....Rig up.
Lohman et al's No. 1 Wyatt Lbr. Co., 150 ft. S, 330 ft. E, NW cor. NE SW, Sec. 18-4-11.....Derrick.
J. C. McDaniel & Lieber's No. 1 Batson, 675 ft. N, 318 ft. E, SW cor. SE, Sec. 16-18-12.....Drlg. 1,050 ft.
Ohio Oil Co.'s No. 1 Acct. 2, Bowman-Hicks, 275 ft. N, 330 ft. W, SE cor. NE SE, Sec. 6-7-13.....Coring 2,132 ft.
Paramount O. & G. Co.'s No. 1 Woolems, 330 ft. N, 330 ft. W, SE cor. NE NW, Sec. 11-6-12.....S.D. 1,656 ft.
Pelican O. & G. Co.'s No. 1 La. Long Leaf Lbr. Co., 215 ft. N, 30 ft. E, SW cor. NW SE, Sec. 4-7-11.....150 ft. oil in hole; T.D. 2,425 ft; W.O.S.R.
Pelican O. & G. Co.'s No. 2 La. Long Leaf Lbr. Co., C NE, Sec. 20-7-12.....Derrick.
Pelican O. & G. Co.'s No. 1 Sabine Lbr. Co., 330 ft. S, 330 ft. E, NW cor. NE SW, Sec. 1-7-12.....Bailed dry; S.O. 2,525 ft; dry 2,575 ft.
W. F. Lacey et al's No. 1 Knouse, 60 ft. N, 111 ft. W, SE cor. NE SE, Sec. 36-8-13.....S.O. 2,500 ft; dry; W.O.
D. H. Riddick's No. 1 Scretchfield, 400 ft. E, 400 ft. N, SW cor. NW SE, Sec. 18-9-12.....S.D. 2,590 ft.

TENSAS PARISH

A. R. Willis et al's No. 1 Currey, 1,320 ft. S, 1,320 ft. E, NW cor., Sec. 39-11-12.....Drlg. 1,230 ft.

UNION PARISH

Bahan & Bahan's No. 1 J. West, 660 ft. N, 660 ft. E, SW cor. SE, Sec. 33-23-3.....D.S. test 2,500 ft; dry and S.D; W.O.
Fred Stovall's No. 1 Stovall, 1,820 ft. E, 350 ft. N, SW cor., Sec. 32-23-4.....Rig up.

WEBSTER PARISH

J. J. Kean's No. 1 Monzingo (was F. M. Fuller's), 200 ft. N, 200 ft. W, SE cor., Sec. 17-18-8.....Arranging to set 8-in; T.D. 1,680 ft.

WEST CARROLL PARISH

Palmer Corp.'s No. 1-A Marston, 1,320 ft. S, 89° 35' W, 1,320 ft. of SE cor., Sec. 11-19-10.....Drlg. hard sand rock 2,724 ft.

ARKANSAS

ASHLEY COUNTY

J. D. Marcum Co.'s No. 1 McGarry, 300 ft. W, 100 ft. S. C, Sec. 10-19-4.....O.W.D.D; arranging to deepen; T.D. 3,300 ft.

CALHOUN COUNTY

Tidal Oil Co.'s No. 1 Freeman-Smith Lbr. Co., 150 ft. C. S line, NE NW, Sec. 3-16-14.....Location.

CLEBURNE COUNTY

Cosden Oil Co. of Ark.'s No. 1 Donophan, 100 ft. S, 660 ft. E, NW cor. SW SE, Sec. 19-9-10.....Drlg. 2,883 ft.
Donnelly-Craver et al's No. 1 Doniphan Lbr. Co., SE cor. NW, Sec. 33-11-9.....Drlg. 280 ft.

COLUMBIA COUNTY

Parker et al's No. 1 Franks, 330 ft. S, 330 ft. W, C, Sec. 25-19-22.....S.D. 2,835 ft.

DREW COUNTY

McClintock & Goodka's No. 1 Ogles, 920 ft. W, 400 ft. S, NE cor., Sec. 35-13-5.....Fishing D.S; T.D. 2,619 ft.

FAULKNER COUNTY

Gold Creek O. & G. Co.'s No. 2 Stermer, SE cor. NW SE, Sec. 17-4-13.....Began drlg. Dec. 12.

FRANKLIN COUNTY

Red Bank Oil Co.'s No. 1 Edtin, SW cor., Sec. 33-10-26.....Rig up.

GARLAND COUNTY

Givens et al's No. 1 Garrett, 660 ft. S, 660 ft. W, C, Sec. 1-3-19.....S.D; W.O. 3,604 ft.

LITTLE RIVER COUNTY

A. L. Buck's No. 1 Greason, NW NW, Sec. 25-12-32.....S.D. 2,335 ft.
McDonald & Shaw's No. 1 W. E. Black, 240 ft. N, 450 ft. W, SE cor. SE NE, Sec. 12-13-28.....Arranging to set 6⅝-in; T.D. 2,180 ft.

LOGAN COUNTY

M. W. Greeson's No. 1 C. S. Parke, 330 ft. N, 330 ft. W, SE cor., Sec. 21-8-24.....Cmtd. 6-in. 950 ft; drlg. broken shale 1,825 ft.

OUACHITA COUNTY

Anderson & Wimmer's No. 1 Buck, Sec. 7-15-17.....Reported junked and abd; C.O; T.D. 2,727 ft.

PIKE COUNTY

Theo. Davis, trustee's No. 1 Ruth Wilson, 200 ft. S, 200 ft. W, NE cor., Sec. 25-5-26.....Fishing 700 ft; S.O.

POPE COUNTY

Ark.-La. P. L. Co.'s No. 1 Crotts, 660 ft. S, 660 ft. W, NE cor. SW NE, Sec. 16-9-21.....Began drlg. Apr. 16; drlg. 450 ft.
Cosden Oil Co.'s No. 1 Mo. Pac. R.R., 660 ft. N, 660 ft. E, SW cor. NW SE, Sec. 13-9-19.....Fishing bailer; T.D. 3,780 ft.

ST FRANCIS COUNTY

Brownlee Drlg. Co.'s No. 1 Whitted, 110 ft. N, 110 ft. E, SW cor. SE NW, Sec. 28-4-1.....Cmtd. 10-in. 290 ft; D.S. test; show gas 2,300 ft.

UNION COUNTY

Al-Cal Oil Corp.'s No. 1 Harvey, 660 ft. W, 330 ft. S, NE cor. SW SE, Sec. 1-17-16.....S.D; W.O. 2,770 ft.
W. M. Coates, trustee's No. 1 McDuffie, Sec. 32-19-17.....T.A. in red beds; T.D. 4,500 ft.
Federal Pet. Co. and Union Sawmill Co.'s No. 1 fee, 330 ft. N, 330 ft. W, SE cor. NW NE, Sec. 9-18-13.....Derrick.
S. B. Hickman's No. 1 Hogg, 330 ft. S, 150 ft. E, NW cor. SE SE, Sec. 35-16-17.....Rig up.
H. L. Hunt's No. 1 Trummell, 240 ft. S, 330 ft. E, NW cor. SW NW, Sec. 28-18-12.....Location.
Lion Oil Ref. Co.'s No. 1 Ballard, 330 ft. N, 330 ft. W, SE cor. SW NW, Sec. 10-18-13.....Cored S.W. sand 4,051 ft.
Marine Oil Co.'s No. 2 Simmons, 300 ft. N, 300 ft. E, SW cor. SE NW, Sec. 10-18-13.....Rig up.
Marine Oil Co.'s No. 2-B Winn, 200 ft. S, 200 ft. E, NW cor. NW SE, Sec. 10-18-13.....Cmtd. short string 6-in. 3,534 ft; T.D. 3,544 ft.
Modisette Drlg. Co.'s No. 4 Union Sawmill, 300 ft. W, 300 ft. N, SE cor., Sec. 14-18-14.....Location.
Johnson-Gummer Co.'s No. 1 Cargile, Sec. 4-18-15.....T.A. 3,825 ft.
J. W. Olvey's No. 1 G. G. Simmons, 288 ft. S, 288 ft. W, NE cor. NE NW, Sec. 15-18-13.....Began drlg. Apr. 16; cmtd. 12½-in. 276 ft; drlg. 1,250 ft.
Simms Oil Co.'s No. 1 G. G. Simmons, 200 ft. S, 200 ft. W, NE cor. SW, Sec. 10-18-13.....S.D.; wtr. 3,331 ft.
Southern Crude O. P. Co.'s No. 1 Oliver, 330 ft. N, 330 ft. W, SE cor. NW NE, Sec. 11-18-13.....Rig up.

VAN BUREN COUNTY

Glenn Cole et al, trustee's No. 1 Scanlan, 200 ft. S, 200 ft. W, NE cor. SE NW, Sec. 5-19-13.....S.D. 50 ft.

WASHINGTON COUNTY

Delbert & Graves' No. 1 Cunningham, Sec. 14-15-32.....S.D; W.O. 602 ft.
C. H. Willoughby's No. 1 Jones, Sec. 34-16-30.....Trying to kill wtr. flow 2,150 ft; hard sand showing oil 1,637-40 ft.
Lincoln Leaseholding Synd.'s No. 1 Lincoln, Sec. 30-15-32.....U.R. 8-in. to T.D. 1,500 ft.

WHITE COUNTY

Letona Synd.'s No. 1 Letona, SE cor. NW SW, Sec. 35-9-8.....Pulled 5 3/16-in; S.D; W.O; T.D. 3,650 ft.

EAST TEXAS

CAMP COUNTY

Rogers et al's No. 1 Enfelt, R. M. Montgomery Sur.....Tested dry 1,870 ft; S.D. 1,920 ft.

MARION COUNTY

H. L. Hunt's (was R. E. Davidson's) No. 1 Susie Chapman, Jackson-Grayson Sur.....D.S. test 2,515 ft; dry, no show; cored sand showing oil 2,715-21 ft; arranging core and test.
P. E. Hussey's No. 1 A. A. Trammell, Chas. Lockhart Sur.....Derrick pattern.

RED RIVER COUNTY

D. M. Buffington's No. 1 Hossler, E. Hughhart Sur.....S.D. 2,365 ft.
Shad Harper's No. 1 W. R. Garland, J. Wagley Sur.....S.D. 1,862 ft.
Johnson Pet. Co.'s No. 2 Randolph, Edw. Dean Sur.....S.D. 2,182 ft.

SHELBY COUNTY

Loring Oil Co.'s (formerly Benedum & Trees Oil Co.'s) No. 1 McCann, D. G. Green Sur.....Drlg. 3,756 ft.
Chapperall Oil Co.'s No. 2 Holt, Matthew Moore Sur.....D.S. test 10-ft. sand 2,736-46 ft; dry; reaming; T.D. 3,004 ft.

MISSISSIPPI

ALCORN COUNTY

Alcorn Pet. Co.'s No. 1 Matthews, SE cor., Sec. 14-2s-7e.....Shot with 100 qts. and reset 6-in. 2,393 ft.

CHICKASAW COUNTY

Hightower & Golson's No. 1 Flemming, NE cor., Sec. 20-13-3.....Driving 8¼-in. through quicksand; T.D. 1,280 ft.

HINDS COUNTY

Oscar Brown's No. 1 Riverside (formerly Hennessee et al's), SE cor. SE SW, Sec. 23-16-5.....Set 12½-in. 30 ft; S.D. 1,050 ft.
Jackson O. & G. Co.'s No. 1 Taylor, C, Sec. 35-6-1e.....Derrick.
Jackson O. & G. Co.'s No. 1 Mayes, Sec. 2-5-1e.....Estimated 2,000,000 ft. gas 2,000 bbls. wtr; T.A; T.D. 2,480 ft.
La. G. & F. Co.'s No. 1 Hanis, Sec. 35-6-1e.....Began drlg. Mar. 15; cmtd. 12½-in. 93 ft.
Love O. & G. Co.'s No. 1 Mendoza, Sec. 11-5-1e.....Derrick.
Jackson O. & G. Co.'s No. 1 Taylor, C, Sec. 35-6-1e.....Derrick.
Mrs. Reeder et al's No. 1 State, SE cor. NW NW, Sec. 25-6-1e.....W.O; T.D. 2,905 ft.

HUMPHREYS COUNTY

E. S. Steele et al's No. 1 C. B. Box, SE cor. SE NE, Sec. 25-14-4w.....Set 12½-in. 60 ft; S.D.

LAUDERDALE COUNTY

Lauderdale O. & G. Co.'s No. 1 Lackey, 990 ft. S and E, NW cor. NE, Sec. 2-7-16.....Set 8⅛-in. 2,792 ft; T.D. 2,316 ft; sand 2,809-14 ft; W.O.
Meridian O. & G. Co.'s No. 1 Hauser, Sec. 33-8-18.....S.D; green sand 2,693 ft.
J. R. Smith Oil Co.'s No. 1 C. F. Craig, Sec. 2-16-14.....Derrick.

LAFAYETTE COUNTY

Banks-Goode et al's No. 1 May, 113½ rds. S, 26 rds. E, NW cor. SW, Sec. 22-10-1w.....Derrick.

LINCOLN COUNTY

Lincoln O. & G. Co.'s No. 1 Pat Case, NE NE, Sec. 21-8-6.....S.D; W.O. 2,221 ft.

MONROE COUNTY

Amory Dev. Co.'s No. 1 Bourland, Sec. 2-13-19.....S.D. 2,912 ft; bailer lost in hole.
Amory Pet. Co.'s No. 1 Hall, Sec. 8-13-19.....Drlg. 2,362 ft; showing small amount gas; 6-in. 2,314 ft.
Park Bowser et al's No. 1 Cowart, second hole, Sec. 2-12-19.....S.D. 30 ft.

RANKIN COUNTY

Gulf Ref. Co.'s No. 1 Rainey, NW NW, Sec. 13-5-1e.....D.S. test 2,510-15 ft; oil and S. W; reaming; to set 9-in. 2,500 ft.
R. A. More et al's No. 1 Interior Lbr. Co., Sec. 28-6-1e.....S.D. repairs 400 ft.

WARREN COUNTY

El Dorado Oil Co.'s No. 1 Dornbush, Sec. 8-18-15.....S.D. 2,475 ft; 2,350 ft. D.S. in hole; W.O.

YALOBUSHA COUNTY

Carter Oil Co. and J. D. Collett's No. 1 Blackmur, 330 ft. S, 990 ft. W, Sec. 14-11-4.....Fishing drill stem; T.D. 2,432 ft.

YAZOO COUNTY

Amerada Pet. Corp.'s No. 1 Doherty, SW SW, Sec. 24-12-2.....Drlg. sandy lime 5,183 ft.

ALABAMA

LAMAR COUNTY

Briggs & Knapp's No. 1 Wefel, Sec. 25-12-14.....T.A. 1,740 ft.

LAUDERDALE COUNTY

A. D. Morton et al's No. 10 O'Neal est., Sec. 8-2s-13w.....Rigging up cable tools.

MARION COUNTY

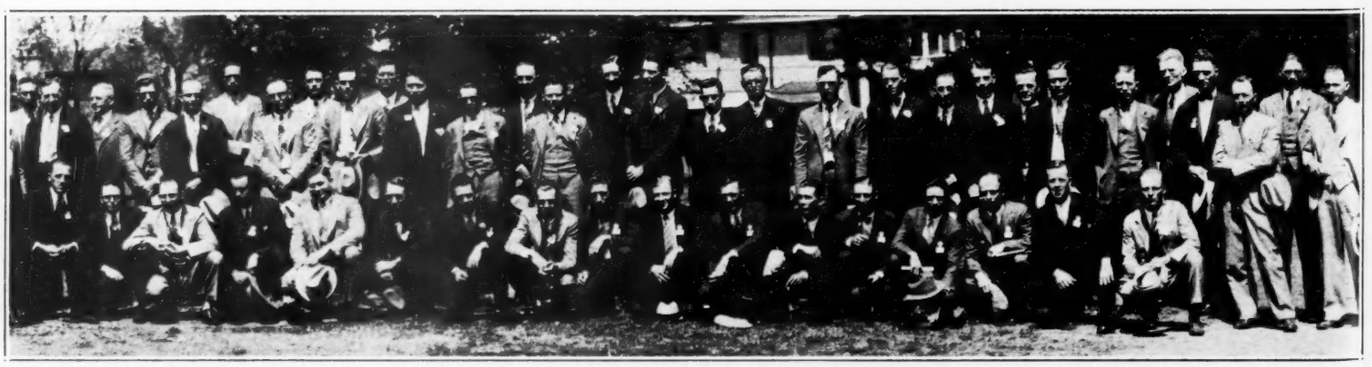
Hobson et al's No. 1 John Clark, SE, Sec. 29-11-14.....Derrick pattern.

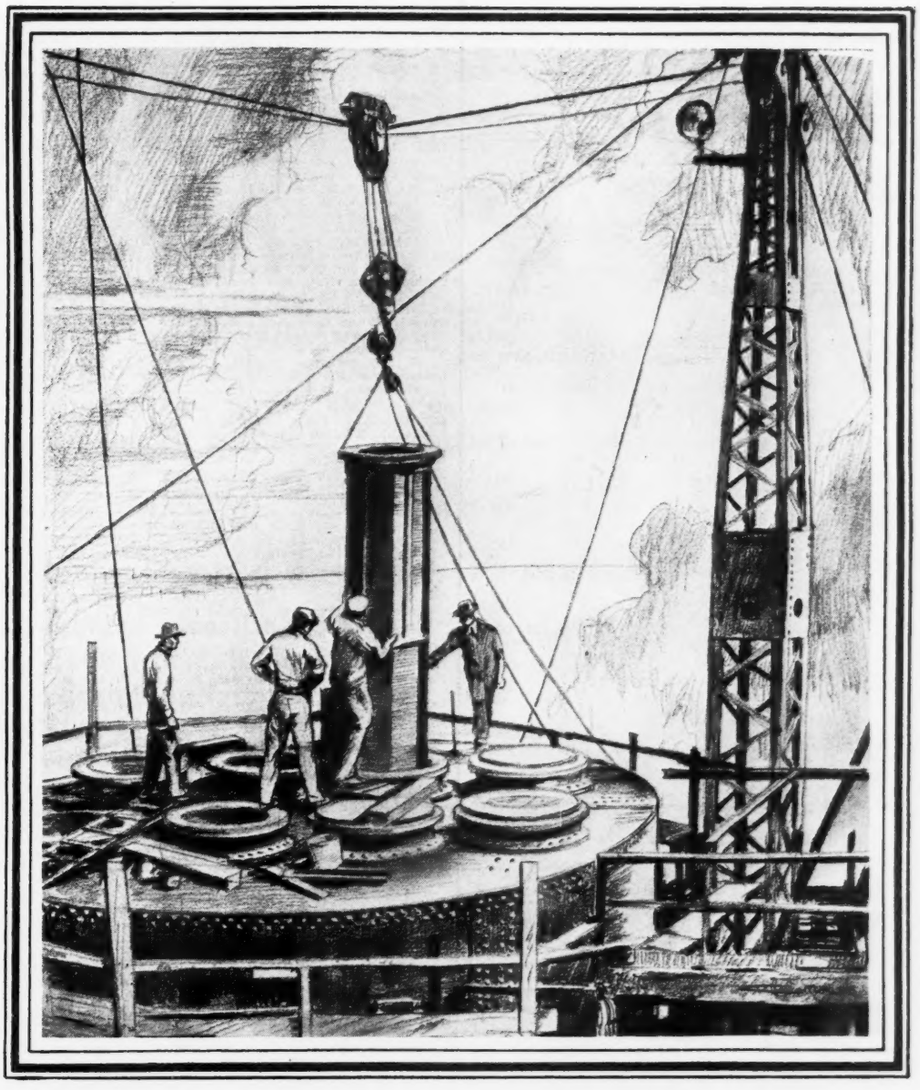
WASHINGTON COUNTY

S. A. Hobson's No. 1 Hobson Bros., Sec. 9-8-2.....S.D; S.W. flow at 1,450 ft.
S.A. Hobson's No. 1 Wilson, Sec. 27-7-1.....Fishing bailer; T.D. 881 ft.
Oscar Brown's No. 2 Land & Cotton Co., Sec. 25-3-2w.....Drlg. 700 ft.

Seventh Southwestern Gas Measurement Short Course

Annual Session Conducted by College of Engineering, University of Oklahoma, Norman, Okla., April 16 to 18, 1930





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TULSA, OKLA., PHILTOWER BUILDING

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LOUISIANA-ARKANSAS PROVEN AREAS

(Continued from Page 46)

Askew & Goodman's No. 1 Roberson, 320 ft. S, 282 ft. W, NE cor. SW SW, Sec. 25-23-11.....Cmtd. 6-in. 3,143 ft; broken sand 3,149-59 ft; T.D. 3,167 ft.

E. W. Bateman's No. 1 Bollinger, 200 ft. S, 200 ft. E, NW cor., Sec. 38-23-11.....S.D. 1,000 ft.

E. W. Bateman's No. 2 Bollinger, 200 ft. S, 200 ft. W, NE cor. Lot 29, Sec. 38-23-11.....Location.

Del.-La. Dev. Co.'s No. 6 Bollinger, 330 ft. S, 220 ft. W, NW cor. Lot 17, in Lot 16, Sec. 31-23-11.....Full oil; W.O.S.R; 15 ft. broken sand; T.D. 3,217 ft.

Eylers O. & G. Co.'s No. 1 Wise, 330 ft. S, 330 ft. W, NE cor., Sec. 35-23-11.....Bailing; 175 ft. in hole; T.D. 3,203 ft.

Greenwood Prod. Co.'s No. 1 Bollinger, 1,980 ft. N, 1,150 ft. E, SW cor. SE, Sec. 36-23-12.....300 ft. oil in hole; deepening; T. D. 3,190 ft.

Goodman-Johnson's No. 1 Martin, 330 ft. S, 330 ft. E, NW cor. SE, Sec. 26-23-12.....W.O.S.R; T.D. 3,169 ft.

H. L. Hunt's (was Love et al's) No. 1 Allen, SE cor. NE NE, Sec. 30-23-11.....W.O. 3,482 ft.

H. L. Hunt, Inc.'s No. 5 J. W. Peyton, 990 ft. W. 330 ft. S, NE cor. SE, Sec. 25-23-12.....Location.

H. L. Hunt, Inc.'s No. 7 J. W. Peyton, 990 ft. S, 990 ft. E, C, Sec. 25-23-12.....Location; reported drlg. in error.

H. L. Hunt, Inc.'s No. 8 J. W. Peyton, 990 ft. E, 330 ft. S, C, Sec. 25-23-12.....Location.

H. L. Hunt, Inc.'s No. 9 J. W. Peyton, 330 ft. S, 330 ft. E, C, Sec. 25-23-12.....W.O.S.R; 100 ft. oil; T.D. 3,222 ft.

H. L. Hunt, Inc.'s No. 10 J. W. Peyton, 990 ft. S, 330 ft. E, C, Sec. 25-23-12.....500 ft. fluid; W.O.S.R; 3,176 ft.

Nat. Drlg. & Prod. Co.'s (was Llde et als') No. 1 Matlock, 2,970 ft. S, 990 ft. E, NW cor., Sec. 26-23-12....Rig up.

La. Pet. Co.'s No. 3 Bain, Sec. 31-23-11.....Cmtd. 6-in. 3,130 ft; T.D. 3,271 ft.

Magnolia Pet. Co.'s No. 2 Matlock, 330 ft. S and W, NE cor. SE SW, Sec. 25-23-12.....Tested 4 joints mud and oil 3,164 ft; T.D. 3,173 ft.

Magnolia Pet. Co.'s No. 1 Roberson, Sec. 26-23-12.....Coring 3,269 ft.

Magnolia Pet. Co.'s No. 3 Matlock, 330 ft. N, 330 ft. W, SE cor. SE SW, Sec. 25-23-12.....Began drlg. Apr. 20; cmtd. 13⅜-in. 193 ft; drlg. 322 ft.

Nat. Gas Prod. Co.'s No. 3 U. S. Govt., 1,520 ft. S, 2,580 ft. E, NW cor., Sec. 31-23-11.....Location.

Nat. Gas Prod. Co.'s No. 4 U. S. Govt., 2,440 ft. S, 2,580 ft. E, NW cor., Sec. 31-23-11.....Location.

Olsen Bros. and Ingall's No. 1 Pine Woods Lbr. Co., SE cor. NW NW, Sec. 25-23-12.....Location.

Phillips Pet. Co.'s No. 1 Bolin (was Phillips Pet. Co.'s No. 3 Bollinger), 390 ft. E, 236 ft. N, SW cor., Lot 16, Sec. 30-23-11.....O.W.D.D; cored shale 3,180 ft.

Phillips Pet. Co.'s No. 1 Floyd, 330 ft. S, 330 ft. W, C, Sec. 25-23-12.....Rig up.

The Texas Co.'s No. 1 Peyton, 660 ft. N, 330 ft. E, SW cor., Sec. 30-23-11.....O.W.D.D.; Comp. Feb. 19, 1928; 40,000,000 ft. gas; 2 ft. sand; T. D. 3,076 ft.; derrick.

The Texas Co.'s No. 2 Peyton, 990 ft. N, 330 ft. W, SE cor., Sec. 25-23-12.....W.O.S.R. 3,195 ft.

The Texas Co.'s No. 5 Peyton, 330 ft. N, 330 ft. W, SE cor., Sec. 25-23-12.....Derrick.

The Texas Co.'s No. 7 Peyton, 1,090 ft. N, 150 ft. E, SW cor., Sec. 30-23-11.....Drlg. 6-in. plug 3,128 ft; 11-ft. sand; T.D. 3,153 ft.

The Texas Co.'s No. 1 Hy. Rose, 940 ft. E, 450 ft. N, C, Sec. 31-23-11.....O.W.D.D.; derrick; T.D. 2,680 ft.

The Texas Co.'s No. 6 Wilkinson, 1,010 ft. N, 330 ft. W, C, Sec. 36-23-12.....Drlg. 2,946 ft.

The Texas Co.'s No. 7 Wilkinson, 990 ft. N, 990 ft. E, C, Sec. 36-23-12.....Location.

The Texas Co.'s No. 8 Wilkinson, 990 ft. W, 330 ft. N, SE cor. NE, Sec. 36-23-12.....Location.

Tippett Drlg. Co.'s No. 2 Holmes, 990 ft. S, 330 ft. W, NE cor. NW, Sec. 36-23-12.....Fishing bit; T.D. 2,446 ft.

John Woodley et al's No. 2 L. & A., 990 ft. N, 990 ft. W, SE cor., Sec. 14-23-12.....Drlg. 3,156 ft.

Woodley et al's No. 1 Roberson, 330 ft. N, 330 ft. W, SE cor. SW NE, Sec. 22-23-12.....Drlg. 1,500 ft.

BOSSIER PARISH—SLIGO

La. G. & F. Co.'s No. 5 Thigpen-Herold, 660 ft. S, 660 ft. E, NW cor., Sec. 13-17-12.....Began drlg. Apr. 16; cmtd. 12½-in. 132 ft; 9-in. 1,550 ft.

La. G. & F. Co.'s No. 6 Thigpen-Herold, 660 ft. S, 1,980 ft. E, NW cor., Sec. 13-17-12.....Location.

CADDO PARISH—DIXIE

D. C. Richardson's No. 1 Oden, 330 ft. S, 330 ft. W, C, Sec. 18-19-14.....Location.

CADDO PARISH—GREENWOOD

Ark.-La. P. L. Co.'s No. 1-B Brumble, 830 ft. S, 1,280 ft. E, NW cor., Sec. 18-16-16.....Began drlg. Apr. 21; cmtd. 10-in. 156 ft.

Calatex O. & G. Co.'s No. 2-A Agurs, 1,325 ft. S, 1,304 ft. E, NW cor., Sec. 7-16-16.....Drlg. 2,675 ft.

CADDO PARISH—OIL CITY

Gulf Ref. Co.'s No. 26-A Levee Board, 2,440 ft. S, 200 ft. E, NW cor., Sec. 34-21-16.....Cmtd. 6-in. 1,800 ft.

Gulf Ref. Co.'s No. 27-A Levee Board, 2,005 ft. S, 200 ft. W, NE cor. NW, Sec. 34-21-16.....Location.

Standard Oil Co.'s No. 19 J. J. Hart, 1,305 ft. E. 1,120 ft. S, NW cor., Sec. 34-21-16.....Began drlg. Apr. 15; cmtd. 10-in. 61 ft; drilled hard shale 1,795 ft.

The Texas Co.'s No. 72 Levee Board, 725 ft. N, 210 ft. E, SW cor. SE, Sec. 27-21-6.....C.O; T.D. 1,852 ft.

The Texas Co.'s No. 73 Levee Board, 1,642 ft. E, 780 ft. N, SW cor. SW SE, Sec. 27-21-16.....Location.

DE SOTO PARISH—KINGSTON

Ark. Fuel Oil Co.'s No. 1 Mrs. C. B. Scott, 330 ft. N, 330 ft. W, SE cor. NW, Sec. 32-14-13.....Dry 2,915 ft; drlg. 2,943 ft.

R. O. Roy's No. 1-B Farmer, 660 ft. S, 660 ft. E, NE SW, Sec. 13-13-13.....Rig up.

R. O. Roy's No. 1 Lee, 660 ft. N, 660 ft. E, SW cor., Sec. 33-14-13.....S.D; repairs; T.D. 1,900 ft.

R. O. Roy's No. 1-B Parker Bros., 660 ft. N, 660 ft. W, SE cor., Sec. 31-14-13.....Rig up.

R. O. Roy's No. 1 Whittaker, 330 ft. S, 330 ft. E, NW cor. SW NE, Sec. 5-13-13.....Derrick.

LA SALLE PARISH—URANIA

Ark. Fuel Oil Co.'s No. 5 Urania, 200 ft. S, 200 ft. E, NW cor. NE SE, Sec. 24-10-1e.....Tested 1,200 ft. S.W. in 4 minutes; 12 ft. sand 5,923-35 ft.; drlg. hard shale and lime 6,060 ft.

Gulf States Gas Co.'s No. 1 Urania, 250 ft. W, 150 ft. S, NE cor., Sec. 1-10-1e.....S.D. 1,000 ft.

Hope Oil Co.'s No. 5 Urania, 660 ft. E, 150 ft. S, NW cor. SW SW, Sec. 19-10-2e.....Derrick.

Kinney, Hardtner & Randall's No. 1 Kinney, SW SW, Sec. 7-10-2e.....S.D. 1,570 ft.

MOREHOUSE PARISH

Bahan & Bahan's No. 4 Feazel, 900 ft. W, 330 ft. S, NE cor., Sec. 2-20-4.....Location.

J. S. Herkness' No. 12 Bowles, 3,392 ft. E, 3,300 ft. S, NW cor., Sec. 18-20-5.....S.D; junked; T.D. 2,737 ft.

Industrial Gas Co.'s No. 1 fee, 1,980 ft. S, 660 ft. W, NE cor., Sec. 3-20-4.....Location.

La. G. & F. Co.'s No. 26 Crossett, 645 ft. E, 574 ft. S, NW cor. Lot 9, Sec. 33-21-5.....Derrick.

La. G. & F. Co.'s No. 27 Crossett, N 67° 30 ft. E 2,079 ft; N 20° 30 ft. W 594 ft, SW cor. Lot 3, Sec. 33, in Sec. 45-21-5.....Drlg. 1,595 ft.

OUACHITA PARISH

Amalgamated Co.'s No. 1-B Kate Cole, 660 ft. N, 660 ft. E, SW cor. NE SW, Sec. 25-20-4.....Location.

Ark.-La. P. L. Co.'s No. 4 Rea & Green, 400 ft. N, 3,975 ft. W, SE cor., Sec. 2, in Sec. 82-18-4.....Cmtd. 8-in. 811 ft.; drlg. 1,880 ft.

Carbon Consolidated, Inc.'s No. 3 Kate Cole, 660 ft. S, 544 ft. E, C, Sec. 26-20-4.....Rig up.

Hope Prod. Co.'s No. 2 Fairbanks, 1,876 ft. E, 623 ft. N, SW cor. SE, Sec. 25-20-4.....Location.

Hope Prod. Co.'s No. 3 Fairbanks, 1,876 ft. E, 628 ft. S, NW cor. NE, Sec. 36-20-4.....Sidetracking drill stem; T.D. 2,302 ft.

Jordan Drlg. Co.'s No. 6 Cole, 1,596 ft. W, 2,388 ft. N, SE cor., Sec. 49, in Sec. 80-18-4.....Cmtd. 12-in. 155 ft.; drlg. 325 ft.

Jordan Drlg. Co.'s No. 7 Cole, 265 ft. S, 1,459 ft. W, NE cor., Sec. 49, in Sec. 50-18-4.....Location.

Jordan Drlg. Co.'s No. 2 Pereboom, 1,207 ft. W, 264 ft. S, C, Sec. 9-18-4.....Location.

Jordan Drlg. Co.'s No. 1 School, 216 ft. S, 244 ft. W, NE cor. NW, Sec. 16-18-4.....Location.

La. G. & F. Co.'s No. 2 Breard, S 80° 50 ft., W 891 ft., S 31° E 489 ft; NE cor., Sec. 45-18-4.....Cmtd. 6-in. 2,167 ft.

La. G. & F. Co.'s No. 3 Breard, S 9° 734 ft., S 81° E 594 ft., NW cor., Sec. 44-18-4.....Location.

Union Gas Products Co.'s No. 1 Hare, 660 ft. S, 660 ft. W, NE cor. NW, Sec. 22-19-5.....D.S. test 2,565 ft; dry; W.O.

United Oil & Nat. Gas Products Co. of La.'s No. 5 Guthrie, 6,396 ft. N, 6,022 ft. W. cor. Secs. 49, 26, and 25, Sec. 49-20-5.....Derrick.

United Carbon Co.'s No. 5 Spade, 842 ft. W, 1,758 ft. S, NE cor., Sec. 34-19-4.....Drlg. 1,900 ft.

United Carbon Co.'s No. 6 Spade, 1,180 ft. S, 140 ft. E, NW cor., Sec. 27-19-4.....Location.

United O. & N. G. Co.'s No. 2 Cole, 660 ft. S, 594 ft. E, C, Sec. 26-20-4.....Derrick.

RICHLAND PARISH

Ark.-La. P. L. Co.'s No. 4-B Sartor, 660 ft. S, 1,320 ft. E, NW cor. SW, Sec. 18-16-6.....Began drlg. Apr. 10; cmtd. 15½-in. 235 ft; 12½-in. 850 ft.

W. C. Feazel's No. 1 R. B. Simon, 2,406 ft. W, 2,020 ft. S, NE cor., Sec. 11-16-6.....Rig up.

Industrial Gas Co.'s No. 1 Alexander, 760 ft. E, 27 ft. N, SW cor. SE, Sec. 4-16-6.....Derrick.

International Gas Prod. Co.'s No. 1 Minnie LaGrone, 769 ft. N, 858 ft. E, SW cor., Sec. 7-16-7.....Location.

La. G. & F. Co.'s No. 2-C F. B. Sartor, 750 ft. N, 945 ft. E, C, Sec. 20-16-6.....Cmtd. 6-in. 2,300 ft.

Northern La. Nat. Gas Co.'s No. 1 Mulhern, 330 ft. S, 660 ft. E, NW cor., Sec. 28-16-6.....Cmtd. 9-in. 878 ft.

Palmer Corp.'s No. 1 Louise Rhymes, 1,335 ft. N, 906 ft. E, SW cor., Sec. 32-17-6.....Began drlg. Apr. 17; cmtd. 12½-in. 180 ft.; 9-in. 928 ft.; drlg. 1,682 ft.

Palmer Corp.'s No. 6 Rhymes, 1,290 ft. S, 1,080 ft. E, NW cor., Sec. 3-16-6.....Derrick.

Palmer Corp.'s No. 8 Rhymes, 1,008 ft. E, 635 ft. S, NW cor., Sec. 33-17-6.....Rig up.

Palmer Corp.'s No. 9 Rhymes, 733 ft. N, 1,278 ft. E, SW cor., Sec. 4-16-6.....Cmtd. 6-in. 2,306 ft.

Palmer Corp.'s No. 1-E D. R. Sartor, 495 ft. S, 660 ft. E, NW cor., Sec. 16-16-6.....Derrick.

Richland Operating Co.'s No. 2 Traylor, 1,000 ft. E, 477 ft. N, C, Sec. 25-16-6.....Cmtng. 6-in. 2,284 ft.

Richland Prod. Co.'s No. 1 T. S. McCoy, 1,252 ft. E, 589 ft. N, SW cor., Sec. 3-16-6.....Location.

Richland Prod. Co.'s No. 1 Thomason, 660 ft. E, 1,320 ft. S, NW cor. SW, Sec. 22-16-6.....Began drlg. Apr. 17; cmtd. 12-in. 164 ft; 9-in. 851 ft.

Southern Carbon Co.'s No. 1 McCoy, 1,980 ft. E, 3,300 ft. S, NE cor., Sec. 16-16-6.....S.D; T.D. 2,450 ft.

Southern Carbon Co.'s No. 1 W. E. Landers, 1,980 ft. N, 1,220 ft. E, SW cor., Sec. 10-16-6.....Drlg. 2,277 ft.

Southern Carbon Co.'s No. 1 L. S. Mulhern, 660 ft. S, 560 ft. W, NE cor. NW, Sec. 30-16-6.....Derrick.

Southern Carbon Co.'s No. 2 Mulhern, Sec. 19-16-6.....Cmtd. 6-in. 2,280 ft.

Southern Carbon Co.'s No. 4 E. A. and F. B. Sartor, 1,371 ft. E, 4,563 ft. S, NW cor., Sec. 18-16-6.....Location.

United Carbon Co.'s No. 1 Cooper, 679 ft. W, 584 ft. N, SE cor., Sec. 24-16-6.....Began drlg. Apr. 17; cmtd. 12¼-in. 184 ft.

United Carbon Co.'s No. 1 W. H. Hallock, 1,980 ft. N, 660 ft. W, SE cor., Sec. 2-16-6.....Cmtd. 6-in. 2,285 ft.

United Carbon Co.'s No. 2 Mulhern, 660 ft. S, 750 ft. E, NW cor. NW, Sec. 30-16-6.....Cmtd. 6-in. 2,280 ft.

SABINE PARISH—PLEASANT HILL

Bridges-Clark Oil Co.'s No. 2 J. W. Guy, 330 ft. S, 330 ft. W, NE cor. SE SE, Sec. 33-10-12.....Drlg. 1,900 ft.

F. A. Bartlett, Jr.'s No. 1 Logan, 200 ft. S, 200 ft. E, NW cor., Sec. 27-10-12.....Rig up.

SABINE PARISH—ZWOLLE

T. D. Allison's No. 1 Holliday, Sec. 31-8-12, Zwolle Townsite.....Derrick.

Allen & Thompson's No. 1 Wall, Zwolle townsite in Sec. 31-8-12.....Began drlg. Apr. 19; cmtd. 10-in. 102 ft.; drlg. 375 ft.

Air Lift Oil Co. and Root Ref., Inc.'s No. 1 Leone, 150 ft. S, 150 ft. W, NE cor. S½ SE SW, Sec. 32-8-12....Dry 2,514 ft. and 2,600 ft; W.O.

Bahan & Ryan's No. 1 Mischel, 1,215 ft. N, 1,169 ft. W, SE cor. SW, Sec. 32-8-12.....Bailed dry; W.O. 2,570 ft.

Loring Oil Co.'s No. 2 Bowman-Hicks, 200 ft. S, 200 ft. W, NE cor. NE NW, Sec. 3-7-12.....W.O.S.R; 2,725 ft.

Loring Oil Co.'s (formerly Benedum & Trees Oil Co.'s) No. 4 Bowman-Hicks, 330 ft. N, 330 ft. W, C, Sec. 34-8-12.....Derrick.

Loring Oil Co.'s (formerly Benedum & Trees Oil Co.'s) No. 5 Bowman-Hicks, 900 ft. S, 1,400 ft. W, C, Sec. 34-8-12.....Drlg. 2,738 ft.

Loring Oil Co.'s (formerly Benedum & Trees') No. 7 Bowman-Hicks, 330 ft. S and W, NE cor. NW, Sec. 34-7-12.....2,000 ft. oil from 2,660 ft.; drlg. 2,670 ft.

Loring Oil Co.'s No. 8 Bowman-Hicks, 330 ft. S, 330 ft. E, NW cor. SW SE, Sec. 33-8-12.....Derrick.

Loring Oil Co.'s No. 9 Bowman-Hicks, 330 ft. N, 330 ft. W, SE cor. NE SE, Sec. 34-8-12.....Derrick.

McFarren & Pace's No. 1 Reeves, 581 ft. E, 588 ft. N, SW cor. NW, Sec. 31-8-12.....Derrick.

R. L. Burch's No. 1 Sabine Lbr. Co., Sec. 31-8-12.....Showed oil; S.D. 2,440 ft.

Joe Burnham et al's No. 1 Bolin, 200 ft. N, 408 ft. E, SW cor. SW NE, Sec. 31-8-12.....Shot 100 qts; C.O; T.D. 2,256 ft.

J. R. Crawford's No. 1 Pearce, 408 feet S, 200 ft. E, NW cor. SW SE, Sec. 32-8-12.....S.D. 1,950 ft.

Dooley & Howard's No. 1 Williams, Sec. 31-8-12.....Rig up.

R. T. Dudney et al's No. 1 Pearson, SE cor. Lot 3, Blk. 3, SW NW, Sec. 31-8-12, Zwolle townsite.....Drlg. 1,975 ft.

Dixie Oil Co.'s No. 1 Nunn, 330 ft. N, 85 ft. W. C, Sec. 32-8-12.....Dry 2,497 ft; W.O.S.R. 2,514 ft; 1,600 ft. oil.

Gerke et al's No. 1 Okerson, Zwolle townsite, Sec. 31-8-12.....Derrick.

Glassell & Merren's No. 1 Thomas, Lot 13, Blk. 3, (Zwolle townsite), Sec. 31-8-12.....Oil show; S.D.; W.O. 2,600 ft.

ECONOMY AND MODERN PRACTICE DEMAND THE ELIMINATION OF EXPANDED TUBES IN CRACKING STILLS

With the Stockham Fantz-Type Return Bend, tubes are *not rolled in.* Any tube or tubes can be changed without destroying any other tube in the bank. Position of tubes may be changed by revolving. Down-time is reduced to a minimum. The Stockham Fantz-Type Return Bend is especially adapted to high pressures and temperatures.

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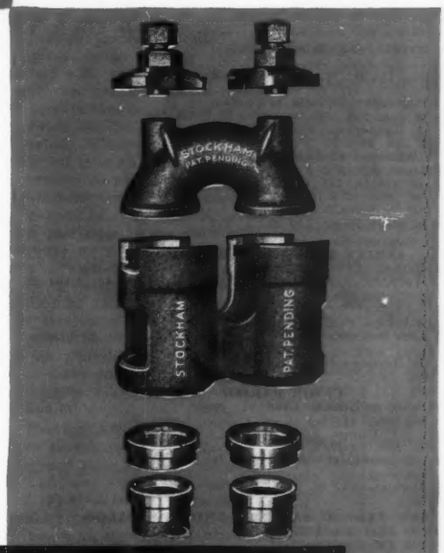
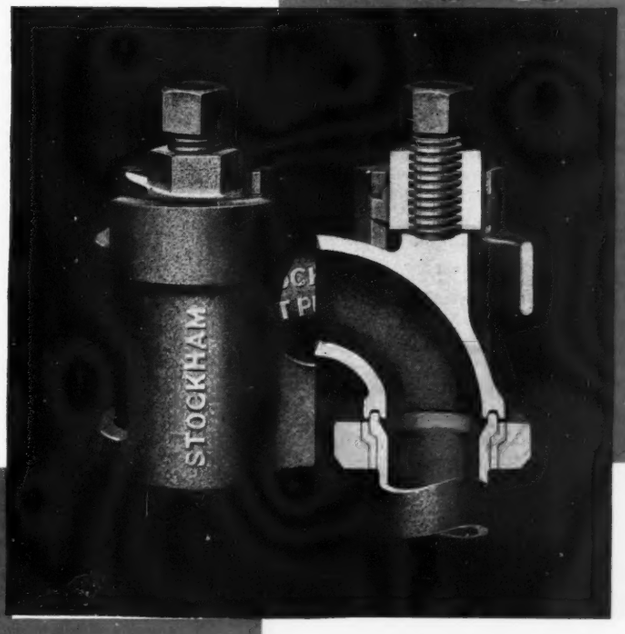




STOCKHAM PIPE & FITTINGS COMPANY

Birmingham, Alabama

THE STOCKHAM (FANTZ-TYPE) RETURN BEND

Patents applied for in the United States and in Argentina, Canada, Colombia, Dutch East Indies, England, France, Germany, Holland, India, Italy, Japan, Mexico, Persia, Peru, Poland, Rumania, Trinidad, Venezuela, Australia, Dutch West Indies and Cuba.

W. G. Gray, trustee's No. 1 Knowlton, 200 ft. S, 330 ft. W, NE cor. NW NE, Sec. 6-7-12.....Drlg. 3,200 ft.
G. A. Henshaw et al's No. 1-A Sabine Lbr. Co., 200 ft. N, 760 ft. E, SW cor. SE NE, Sec. 31-8-12.....S.D. 2,525 ft.
G. A. Henshaw et al's No. 3-A Sabine Lbr. Co., 766 ft. N, 200 ft. E, SW cor. SE NE, Sec. 31-8-12.....Location.
G. A. Henshaw et al's No. 1-B Sabine Lbr. Co., 150 ft. S and E, C, Sec. 31-8-12.....T.A. 2,640 ft.
C. L. Jett, trustee's No. 1 Jones, 150 ft. C, Sec. 31-8-12..Cmtd. 6-in. 2,164 ft; T.D. 2,170 ft.
F. M. Hood's No. 1 Winston, 460 ft. S, 290 ft. E, NW cor., Sec. 31-8-12.....Cmtd. 6⅝-in. 2,214 ft; drlg. 2,-234 ft.
Jones & Johnson's No. 1 Pearson, Sec. 31-8-12.....Cmtd. 6-in. 2,248 ft.; T.D. 2,269 ft.
O'Brien Bros.' No. 1 Colquitt, 330 ft. S and E, NW cor. SW, Sec. 32-8-12.....Drlg. 2,535 ft; T.A. 2,575 ft.
Ohio Oil Co.'s No. 3 Bowman-Hicks, 330 ft. S and W, NE cor. SE SW, Sec. 33-8-12.....Drlg. 2,680 ft.
Olsen Bros.' No. 1 Ferguson, 330 ft. N, 330 ft. E, SW cor. NW SE, Sec. 33-8-12.....Derrick.
Olsen Bros.' No. 1 Keeler, SW cor. SW SE, Sec. 27-8-12..T.A. 2,625 ft.
W. D. Perritt's No. 1 Crow, NW, Sec. 31-8-12, Zwolle Townsite .....Derrick.
Philp Bros.' No. 1 Dow, Lot 1, Blk. 18, Zwolle townsite, Sec. 31-8-12.....S.D. fuel; 470 ft.
Ray-Dawes Drlg. Co.'s No. 1 Mansfield Hwd. Lbr. Co., Sec. 36-8-13 .....Dry; S.O; W.O. 2,550 ft.
Ruston Drlg. Co.'s No. 1 Bowman-Hicks, 330 ft. S, 330 ft. W, NE cor., Sec. 4-7-12 .....T.A. 2,640 ft.
Ruston Drlg. Co.'s No. 1-A Bowman-Hicks, 330 ft. S, 330 ft. E, NW cor. SW SW, Sec. 35-8-12.....S.D; W.O. 2,690 ft.
Sabine Lbr. Co.'s No. 1 fee, 150 ft. N, 150 ft. W, C, Sec. 31-8-12 .....Cmtd. 6-in. 2,219 ft.; T.D. 2,237 ft.
C. E. Simmons' No. 1 Anderson, Sec. 31-8-12 (Zwolle townsite) .....Rig up.
C. E. Simmons' No. 1 Leach, 435 ft. W, 113 ft. N, SE cor. SW NW .....Location.
W. S. Smith et al's No. 1 Colquitt (Zwolle townsite), 500 ft. S, 480 ft. E, NW cor. SW NE, Sec. 31-8-12..Derrick.
W. S. Smith et al's No. 1 Henderson, 200 ft. S, 300 ft. E, NW cor. SE SE, Sec. 31-8-12.....Derrick.
W. S. Smith et al's No. 1 Williams (Zwolle townsite), 804 ft. N, 40 ft. W, SE cor. SW NE, Sec. 31-8-12...Rig up.
Stovall Drlg. Co.'s No. 1 Lefkovitz, 247 ft. N, 250 ft. W, SE cor. N¾ SE NW, Sec. 33-8-12.....Bailed dry 2,694 ft. and 2,699 ft; W.O.
A. H. Tarver's No. 1 Sabine State Bank, 250 ft. N, 250 ft. W, C, Sec. 27-8-12.....W.O.S.R; 400 ft. oil; T.D. 2,680 ft.

SABINE PARISH—BLUE LAKE

H. S. Autrey's No. 1 Long-Bell, 1,120 ft. S, 1,120 ft. W, NE cor., Sec. 35-8-14.....Cmtd. 8¼-in. 1,804 ft.
R. L. Gay's No. 7 Bowman-Hicks, Sec. 14-7-14.....Hole full oil; W.O.S.R.; T.D. 2,575 ft.
R. L. Gay's No. 8 Bowman-Hicks, Sec. 18-7-13.....Derrick.
R. L. Gay's No. 4 Sabine Lbr. Co., Sec. 13-7-14.....Showed oil and gas, deepening, 2,400 ft.
Ruston Drlg. Co.'s No. 1-B Bowman-Hicks, 330 ft. S, 330 ft. E, NW cor., Sec. 24-7-14.....Drlg. 1,250 ft.

UNION PARISH

Greenwood Prod. Co.'s No. 1-B Guinn, 1,980 ft. N, 1,980 ft. W, SE cor. NE, Sec. 32-21-3.....Location.
Greenwood Prod. Co.'s No. 1-C Guinn, 1,320 ft. N, 3,-300 ft. W, SE cor. NE, Sec. 32-21-3.....Location.
Industrial Gas Co.'s No. 1-B Jenny, 660 ft. N, 660 ft. E, SW cor., Sec. 33-21-4.....Cmtd. 9-in. 876 ft; drlg. 1,100 ft.
Sabine Prod. Co.'s No. 1 Morgan, 834 ft. W, 88 ft. S, NE cor. NW, Sec. 11-20-3.....Cmtd. 6-in. 2,070 ft.

WEBSTER PARISH—SAREPTA AND SHONGALOO

S. H. Riggs' (was Liggett et al's) No. 1 Slack, 150 ft. N, 366 ft. W, SE cor. SW SE, Sec. 36-23-11 .....Cmtd. 6-in. 2,700 ft.
Magnolia Pet. Co.'s No. 3 Scoggins, 165 ft. N, 230 ft. W, SE cor. SW NW, Sec. 1-22-11.....Showed little oil and S.W; fishing swb. 2,707 ft.
Mt. Vernon Oil Co.'s No. 3 Pardee, 200 ft. S, 1,500 ft. E, NW cor. NE SW, Sec. 3-22-11.....1,400 ft. fluid; 6 ft. sand; W.O.S.R.; T.D. 2,653 ft.
Merritt & Merritt's No. 1 Boucher, 200 ft. N, 200 ft. E, SW cor. SE SE, Sec. 17-23-11.....Coring 3,200 ft.

ARKANSAS
JOHNSON COUNTY

Ark.-La. Pipe Line Co.'s No. 1 Cline, 660 ft. S, 660 ft. W, NE cor. NE SE, Sec. 16-10-24 .....Began drlg. Apr. 22; drlg.

NEVADA COUNTY

Roy Davis et al's No. 1 Chas. Henry, 1,120 ft. N, 1,-120 ft. W, SE cor., Sec. 10-12-20.....Rig up.
C. F. Steele's No. 1 E. W. Groves, Sec. 21-14-20.....S.D. 2,810 ft.

OUACHITA COUNTY—SMACKOVER

L. K. Hamilton's No. 2 Arnold & Doyle, 460 ft. E, NW cor. SE SE, Sec. 23-15-16.....Rig up.
J. D. Reynolds' No. 3 Berg, NE cor. SE SW, Sec. 27-15-15 .....Swabbing to test 50 ft. brown formation; T.D. 2,080 ft.
J. D. Reynolds' No. 4 Berg, 300 ft. S, 180 ft. W, NE cor. SE SW, Sec. 27-15-15 .....Location.

OUACHITA COUNTY—STEPHENS

Magnolia Pet. Co.'s No. 2 Grayson, 150 ft. N, 200 ft. W, SE cor. NE, Sec. 21-15-19.....Missed drill stem test 2,126 ft.; cmtd. 5¾-in. 2,118 ft.; T.D. 2,-134 ft.

UNION COUNTY—CHAMPAGNOLLE

Magnolia Pet. Co.'s No. 1 Gregory, Sec. 15-17-14.....Drlg. 3,547 ft.
Sundby et al's No. 2 Perdue, 75 ft. S, 150 ft. E, NW cor., Sec. 33-16-14.....Rig up.
Root Refineries, Inc.'s No. 2 Jerry, Sec. 21-17-14 .....Derrick.

UNION COUNTY—EL DORADO

H. L. Hunt's No. 6 Pratt, 150 ft. N, 330 ft. E, SW cor. NE NE, Sec. 7-18-15.....Fishing for liner 2,214 ft.
Malloy & Co.'s No. 4 Goodwin, 300 ft. N, 300 ft. E, SW cor. NE NE, Sec. 36-17-16.....Running sand pump; 22 ft. hard sand; T.D. 2,222 ft.
Malloy & Co.'s No. 1 Murphy, Sec. 1-18-16.....Rig up; W.O.
Malloy & Co.'s No. 3 Robertson, NE cor. S½ SW NE, Sec. 6-18-15.....Location.
Rice et al's No. 1 W. Ralty, 150 ft. S, 150 ft. E, NW cor. SW, Sec. 7-17-15.....Spudded July 18; cmtd. 10-in. at 92 ft.
Wesinger & Ball's No. 1 Rogers, 1,014 ft. N, 150 ft. E, SW cor. E½ SW SE, Sec. 31-17-15.....Bailing to test; T.D. 2,221 ft.

EAST TEXAS
HARRISON COUNTY

Ark.-La. Pipe Line Co.'s No. 2 Gibson, 330 ft. N, 330 ft. W, SE cor. Gibson tract, J. Womack Sur. .....Rig up.
Shell Rock Pet. Co.'s No. 1 Oliver Dougherty, W. D. Burris Sur. .....Coring hard shale 3,475 ft.

PANOLA COUNTY

Ark.-La. P. L. Co.'s No. 12 Werner, 1,102 ft. N, 132 ft. E, SW cor. 15-ac. tract in E. F. Mitcheson Sur. ...Drlg. hard lime 2,957 ft.
Calatex O. & G. Co.'s No. 3 Caldwell, 243 ft. S, 1,034 ft. W, SE cor. Jno. Womack Sur. in Jas. Shadoin Sur...S.D. 1,400 ft.
Nat. Gas Prod. Co.'s No. 3 Roquemore, B. C. Jordan Sur..Cmtd.; gas, blowout between csg. 2,300 ft., sand; T.D. 4,400 ft.
Doris Thomason's No. 10 Crenshaw, 1,730 ft. S, 2,594 ft. W, SE cor. Jno. Womack Sur. in B. C. Jordan Sur...Location.
Doris Thomason's No. 6 Trosper, 4,350 ft. N, 200 ft. W, SE cor., Jane Thorpe Sur. .....Arranging to set tubing and packer 2,378 ft.

FACTORS IN CRYSTALLIZATION OF WAX IN PARAFFIN DISTILLATE

By Harold J. Dunmire
Valvoline Oil Co.*

The purpose of this paper is to point out some of the factors governing the crystallization of paraffin wax. The work outlined here was carried out in laboratory size apparatus where conditions governing the various experiments could be easily controlled. No attempt is made to enumerate the different theories advanced on the subject by men who have done various amounts of research in the petroleum industry, nor is any attempt being made to discredit any of those theories. Instead, I am merely outlining the work done, together with results obtained, and the observations made while obtaining those results.

For many years it was thought that "cracking" was essential to the manufacture of wax distillate. Refiners took their wax distillate cut from the crude, and rerun this cut in a so-called cracking still, to obtain the desired crystalline form of wax necessary in a pressable paraffin distillate. Later, the primary cut from the crude was segregated so that only part had to be cracked in order to make the distillate pressable. More recently refiners who can distill their paraffin distillate cut through a bubble tower have obtained a pressable distillate on the primary distillation. It was decided to prove, if possible, just what effect cracking had, and what effect fractionation had, upon the manufacture of good wax distillate.

A Spencer microscope, equipped with Bausch and Lomb camera, was used in this work for obtaining photomicrographs of the wax crystals. Polarized light was obtained by means of crossed Nicol prisms. This apparatus had been in daily use for some time in conjunction with regular plant operation; therefore the experience already obtained in judging the photomicrographs insures a fairly correct analysis.

A quantity of paraffin distillate was prepared by taking a deep cut from West Virginia P.G. crude, under vacuum, in a pipe still. This method was used to eliminate cracking as much as possible. The cut obtained will be referred to hereafter as uncracked paraffin distillate stock.

Test Described

To determine the effect of fractionation a portion of the above prepared stock was distilled under vacuum (10 mm. of mercury pressure) and 5 per cent cuts collected. The apparatus used consisted of a regular Engler distillation flask, well insulated, with the heat applied in such a manner that there was only a small temperature drop between the liquid in the flask and the vapors entering the condenser. The distillation was carried out rapidly so that poor fractionation of the overhead distillate resulted. The 5 per cent cuts were prepared for photomicrographing in such a manner that the first sample was composed of the first 5 per cent; the second sample was a blend of the first and second; and the third sample was a blend of the first, second and third cuts; or in other words the third sample represented the first 15 per cent over. In like manner, blends were made up from all of the 5 per cent cuts so that photomicrographs of each blend could be taken to determine the maximum percentage of good pressable distillate obtainable with poor fractionation.

A second portion of the uncracked paraffin distillate stock was rerun, under 10 mm. mercury pressure, through a high packed tower carefully controlled in order to secure good fractionation of the overhead. The cuts were collected in 5 per cent lots, as before, and prepared for photomicrographing by blending. It was found that almost 20 per cent more of good quality paraffin distillate was obtained in the case where the overhead had been subjected to good fractionation. This seems to be an important factor in the preparation of good pressable distillate.

The effect of cracking was studied by preparing the sample in the following manner:

An autoclave capable of withstanding several hundred pounds pressure was used for cracking the paraffin distillate stock. The operation of this autoclave consisted in charging the required amount of paraffin distillate stock and holding the temperature desired for a predetermined length of time. Both the time and the temperature were varied so that a check on these two factors might be obtained. Any overhead resulting, which could be condensed, was mixed with the bottoms after these bottoms had been withdrawn and cooled. The amount of this overhead, in all cases, was small. In this way the amount of cracking could be varied with a minimum of distillation.

The different samples obtained above were rerun under 10 mm. of mercury pressure, both with and without fractionation, as previously explained. As in the case of the uncracked paraffin distillate stock, samples were taken in 5 per cent cuts and blended for photomicrographic analysis. The results indicated that time was more important than temperature after cracking temperatures had been reached. The cracked samples showed increases in the percentage of pressable distillate over that obtained from uncracked stock both in the case of those distilled with and without fractionation, but the percentage was lower in the case of all cracked samples when rerun without fractionation than that obtained when rerunning the raw distillate with good fractionation. This would tend to prove that fractionation is more important than cracking when running paraffin distillate. It would also tend to show that fractionation eliminates a high boiling substance which inhibits crystallization and that cracking either destroys or breaks up this high boiling material.

Maximum Yield

The maximum amount of pressable paraffin distillate can be obtained with:

1. Cracking and good fractionation.
2. Good fractionation.
3. Cracking and poor fractionation.
4. Poor fractionation.

The yield in per cent did not show as great a difference between 1 and 2 as between 2 and 3, indicating that, while cracking was desirable, it was not as beneficial as good fractionation. The combination of both yields the maximum desirability.

Paraffin distillate samples obtained from several different crudes were photographed under the microscope so that a comparison of their crystal size and shapes could be made. The sizes varied, at the point of crystallization, from .0005 inch to .01 inch long, depending upon the crude and the manner in which the distillate was made. The shape of the crystals varied from long thin needles to flaky crystals of very large sizes. The shapes depended to a large extent upon the nature of the crude. Generally speaking, though, the wax in all crudes appeared to be essentially the same.

While working on the above problem, observations were made which might be summed up as follows:

1. That fractionation is more important than cracking in the manufacture of good wax distillate.
2. That all petroleum wax is of the same type of material. So-called amorphous wax, as a distinct type does not exist.
3. Petroleum wax is naturally very crystalline. Unless its tendency to crystallize is suppressed, the formation of good crystals will result.
4. The presence of a colloid, or high boiling material, inhibits the formation of good crystals, causing the so-called amorphous condition to result.
5. This high boiling colloid can be

(Continued on Page 152)

*Before N.P.A. meeting at Cleveland, Ohio.

BIG DEVELOPMENT OF ADHESIVES FOR FOILING

(Continued from Page 31)

provement over the other in one characteristic or another and obviously numerous incomplete compounds were necessarily constructed in pursuit of this work. In like manner before success was obtained some 17 resinous adhesives have had to be developed, many of which are perfectly clear having no color. We speak of asphalts, tars and resins only as bases; satisfactory adhesives contain many additions and special treatments.

While there are many compositions that will resist oil it seems they must be in a dry and hard state, in other words, they are chalky and brittle. When means are used to give any of these compounds elasticity they become susceptible to softening by petroleum products. Out of this work has come a bare half dozen promising compounds with the characteristics of an adhesive and resistant to oil as well as water. This is necessarily

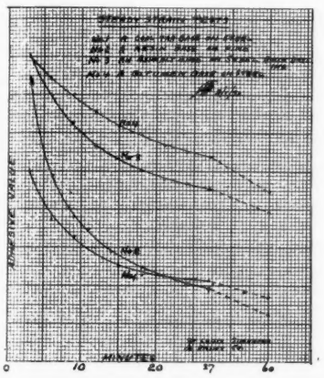


Figure 5.

a slower development than in the case of other types of adhesives partly because of the complication due to the necessity for careful and long testing and partly because technical knowledge of oil proof compounds is in the hands of a few, but fortunately in this development the writer has the assistance of one of the country's best chemists in this line and there is no doubt of the issue. It might be mentioned here that we have developed two semioil resistant adhesives one in black and one clear. It must be understood that an adhesive for practical use must have substantial body and it is only one of the problems to obtain the proper body with easy and smooth brushing or spraying characteristics.

Characteristics of Adhesives

Some of the characteristics of adhesives are shown in the accompanying curves in which Curve P of Figure No. 2 is one of the first adhesives put in use. It will be seen by comparing with later developments that this adhesive is very weak in cohesion though having very good adhesive powers, furthermore it was thick and gave an irregular surface. This adhesive when painted on steel at 60° F. will not hold the foil at summer temperatures and the adhesive would flow even on a sloping surface. Improvements made are shown by the other curves.

It must be considered that metal surfaces may be at temperatures ranging from 60° F. to 160° F. when foiling is done so the adhesive must be adaptable to these conditions and even greater ranges, then the adhesive will in many instances be subject to temperatures below zero under which conditions it must still remain elastic and this strain of contraction and expansion has been the nemesis of many other types of coatings. There have been cases where an asphalt adhesive was diluted by adding gasoline in pure ignorance of the condition and of course the results were anything but satisfactory.

Other characteristics of adhesives under development are shown in Figure No. 3. Here Curve A shows good cohesion but indicates that this adhesive must be used quickly for it loses all semblance of adhesion in a short time, while on the other hand Curve B is of an adhesive that is more practical because it can be foiled long after applying.

Figure 4 shows the results of applying adhesives to metal at various temperatures where these temperatures may cause the adhesive to dry out prematurely or may cause undue softening which may reduce elasticity at lower temperatures after the foil is in place.

Creep Type

Another test, some results of which are shown in Figure 5, is of the creep type where the adhesive is placed under a definite initial tension which automatically reduces until equilibrium is reached and the plot is made against time.

All of these curves mean very little except to show that we not only have developed three distinct means for testing adhesives but all compounds have been put through a whole series of tests in order that intelligent study could be had which has resulted in products of the utmost practicability. When work of this sort is not done intelligently the consumer becomes the experimenter.

Many surfaces may need special treatment to give the best results as there will not be any universal adhesive and combinations will be in order for special cases. Recently the writer was presented with a problem in wood. Nineteen different methods of treatment have been tried on this surface; this is not to say that none was successful but much work of this kind is necessary to gain knowledge on the most acceptable and practical means to give the best results. Another type of wood surface has been given 11 different treatments, all different from the first case. On account of the varied applications of foil, problems in covering canvas, leather, rubber, wall board, cement, wire cloth and many other surfaces are constantly being presented. On the other hand it has been found that nowhere near the trouble and expense will be needed to prepare surfaces in general as is necessary when painting is to be done.

We find in some adhesives a granular break somewhat like cement, others have short elasticity, the adhesive extending

Tank with foiled roof and top ring and aluminum paint on rest of tank.

only a distance about equal to its thickness before breaking while others contribute hundreds of cobweb like strings or complete films which stretch many inches. Then there are various thicknesses of adhesives as well as those which brush out smooth and those which leave ridges, those which dry slowly and those that dry fast.

Advantages of Foiling

The advantages of foiling are numerous and important in the scientific treatment of the corrosion problem. Some three years ago the writer realizing the vulnerability of all common protective coatings tried to devise a method whereby a water-tight coating could be had. This was carried out by using many available paints as first coat adhesives, then applying a layer of cellulose acetate in sheet form, protecting this against the elements and abrasion, by another suitable paint coat. This failed after many attempts principally for the want of an adhesive. Aluminum foil it is thought will be a great improvement over the foregoing method as it will not need the outside paint coat and we now have made available adequate adhesives.

The advantages of foiling can be listed as follows: Autogeneous corrosion will give no further concern. Metal surfaces need no expensive preparation. The adhesive will be a surface protector. This adhesive will be protected against deterioration. The foil will resist corrosion for years. Aluminum foil will reflect heat, keeping it out or in whichever source is at the higher temperature.

Foil may be patched or foiled over without removing old foil.

While the maximum thickness of foil is .005 inch, where the conditions warrant it two or more layers may be applied with a protective life increase in greater proportion.

An adhesive for foiling should resist a direct pull of 8 pounds per square inch at normal temperatures, it should be easy to apply, flowing enough so that brush marks will not be visible, it should reach its strength in a short time after application but should be in proper condition for foiling over a considerable period. When the adhesive is covered with foil it is no longer susceptible to evaporation or oxidation so unless provided with oxygenants or absorbers it should not change in character. No good adhesive can be diluted in the field without much injury as it is much different from paints as much as it may look like them. Even paints are often spoiled by the addition of improper diluents on the job but this usually is not so disastrous. It would be too bad if this happened with an adhesive for great pains are taken to make the product right at the factory where adequate testing apparatus is available.

Testing Adhesives

There have been many devices brought forth for testing adhesion and cohesion as well as tackiness and paint hardness but none of these were found adaptable to the practical testing of foiling adhesives so it has been necessary for us to work out a new principle. This was the first thing to do for it has been usual in the past to make finger tests which, as shown by the accurate testing machine, do not give a correct indication of the adhesive's properties. Two other devices were devised one for a quick test and the other for creep tests which obviously take a long time.

In working on adhesives the whole field is being explored including all synthetic and natural gums and resins as well as inorganic chemical compounds. Dozens of products have already been thoroughly investigated. All of this has resulted in the development of two outstanding adhesives of high character and in making foiling available for all special cases as they arise.

There have also been many developments in the application of foil. Seams can now be made to protect the adhesive; methods have been devised for applying foil in a way to avoid air pockets. The standard steeple rivet for tanks was a problem as it easily punctured the foil, now this is taken care of by a temporary expedient while a method of preforming the foil to fit the rivets is being developed. It also will soon be possible to take care of tank leaks satisfactorily more of which will be heard later.

RESPONSIBILITY PUT ON MANUFACTURER

(Continued from Page 30)

ments, which in turn have resulted in losses both to the sellers and their competitors. The psychology of salesmanship in a market that is eager to buy differs greatly from the psychology of selling in a market that is supplied to the saturation point. In the one case the salesman thinks of both price and practice in terms of a fair profit to his company and continued friendly future relations with his customers. He uses what we call good business judgment. In the other case he is forced to do what he can in converting an inventory into dollars. He is under pressure to sell on almost any terms and he does so in disregard of values, profits or future business considerations. We condemn him for bad business judgment when in fact he is not exercising any judgment at all. He does not desire to drag his competitors down with him but he does it whether he desires to or not The competitive gravitation tends to bring prices and practices to the lowest level. While we should welcome and encourage every effort to bring about sanity and good business judgment in our salesmanship, we cannot aviod recognition of the fact that over supply in relation to public requirements is the greatest single reason for bad marketing and it follows that a better balance between supply and demand will do more than any other one thing to restore good salesmanship.

Statistics Available

The quantity of gasoline which can be sold in the United States in any year, or in any of the marketing areas can be predicted with very close accuracy. Fortunately, there has been great improvement in our current information regarding crude runs and gasoline stocks. The weekly A.P.I. figures for each of the established districts are a timely and invaluable guide to operations. The study and analysis of these figures is clearly in the interest of each refining company and it is equally to the interest of each company to recognize its individual responsibility as a contributor to the supply which must be marketed.

One of the most difficult problems arises out of the necessity of promptly appreciating the effect of changed conditions. The progress of integration in operations as between manufacture and marketing has been very great. By this I mean that there has been an increasingly greater quantity of gasoline marketed through company owned or controlled outlets. Many companies which performed only the marketing functions have sold their stations to companies which manufacture as well as distribute. This undoubtedly has increased the difficulties of the refiners who rely only or largely upon tank car sales. For these refiners there is an obvious hazard in using the past as a guide to their operations. They must recognize the changes that are taking place. The sound principle to follow, I believe, is to know as far as possible, where the gasoline can be disposed of, at a profit, before it is manufactured. It is a well known fact that manufacturers in other industries do not carry as large inventories as they did some years ago. Neither do the merchants and dealers. The price deflations, large and small, which have occurred have taught them that inventories may be expensive assets. Manufacturing in general, is now done as orders are received and there is a steadier flow from manufacturer through the merchant and dealer to the consumer.

A few days ago I read the following statement in the New York Times:

"The day's only news development of consequence, however, was the United States Steel Co.'s monthly unfilled tonnage statement, which was negative in character. Orders on the books at the end of March were 90,905 tons greater than at the month's beginning. There had been some random prediction of a heavy decrease; but the company has been adjusting production closely to visible consumers' requisitions. It is, however, somewhat interesting, in view of the recent talk about 'absence of a backlog of orders,' to observe that the present total of unfilled tonnage exceeds by 20,000 to a million tons the figure of the same date in the four past years."

The comment which attracted my attention was this:

"The company has been adjusting production closely to visible consumers' requisitions."

Such a policy if adopted by each oil company would mean immediate and substantial progress toward the orderly and prosperous conduct of its business. Note that the close adjustment of production is made to consumers' requirements that are visible. That means manufacture in

accordance with orders. It does not mean manufacture in accordance with orders that are hoped for. The difference between the two policies is the difference between business and speculation.

Can Gauge Demand

It is true that consumers' requirements for gasoline are more seasonal than they are for steel. In the past it has been true and with respect to some refiners it is probably still true, that the oil industry produces somewhat more gasoline in winter than is consumed in that period, and that the public consumes somewhat more in the summer than is produced in the summer, but this seasonal variation presents no real complications nor can it be made the excuse for speculation in manufacture. The proportion of the year's consumption that takes place in each month is a matter of budgeting. It is comparatively easy for each company to know in January what its consumers' requirements will be in August, by carefully budgeting and comparing the country's and state's increases as against the normal output of that company during the past year. But the experience of the oil business shows that its manufacturing operations have not been guided by such knowledge. Stocks have been piled up in winter beyond any reasonable storage necessity and then when gasoline has begun to move in spring and early summer, manufacture has speeded up again with the result that markets have broken in mid-summer, in the period of greatest public demand, by the rush to unload stocks that were built up far beyond the point of "visible consumers' requisitions." Due to the ever increasing knowledge of refining and refining equipment, the above method used in the days of the old batch still method of refining, is fast becoming a foolish practice. It is almost as sensible as the practice in the old days of gathering just as much ice in the winter as the good Lord provided and putting it in expensive ice houses in order to supply the demand in summer over which the ice companies had no control or very little idea of what the same would be, as against present day methods of making artificial ice as per customers' demands day by day. With pressure stills and continuous stills it is now possible to supply customers' demands month by month.

If it appears to you that in a discussion of marketing I have placed the weight of responsibility upon the manufacturer or the manufacturing departments, my answer is that no one knows these conditions better than the marketer. What the refinery manufactures the marketer must sell somewhere, somehow, at some price. The situation is something like a storage dam that breaks. The water rushes down the valley destroying property as it goes with irresistible force. You do not ask men to stop it. You expect them only to save their own lives if they can.

I do not defend the marketing methods of the oil business. I welcome every sound effort to correct the abuses that exist. But as a marketer I frankly place the primary responsibility upon the manufacturers and the manufacturing departments when, year after year, they create a flow which inevitably gets beyond control. The remedy is for every manufacturer to "adjust production closely to visible consumers' requisitions."

Having tried to lay the blame of all evil with respect to chaotic conditions in the oil business today on the oil manufacturer, I think it is only fair to let the manufacturer know how the marketers are trying their best to sell their products. There are really three major factors, all three of which are, in my estimation, of kindred importance, which will spell success from the retail marketing standpoint, namely, quality advertising, quality products and quality personnel to push them.

Quality Advertising

Our company is thoroughly sold on the necessity of a large amount of quality advertising. Petroleum products are at best tremendously difficult to advertise, as I am sure every advertising agency has found to its grief. Also, by advertising petroleum products you cannot build an increased market. This may sound like an anomaly, but if we analyze the situation we will find something like this: There are only so many automobiles produced per year and so many sold, and we can tell pretty accurately from statistics about how many gallons per car these machines will use. Therefore, the problem of advertising is to transfer the allegiance of as many motorists as possible from the product which they are using to your product. I think that many oil companies have made the mistake of allowing their advertising agencies to make general claims which any competitor can make, and, in many instances, are making, at the same time as their advertisements appear, with a consequent waste of money and questionable gallonage return. Here in Ohio we have tried to present to the public advertising, as much as possible, having an interesting appeal to the reader, and not just so many more extravagant adjective claims about petroleum products. We have tried to show the public a little bit of the inner workings of the manufacturing side of the game, simply told and in as few words as possible, to let them know and have them take an interest as to how the products which they buy from us are made and delivered to them without being too technical. Human nature is pretty much the same the world over—if a man can discuss a new problem with his friends about which heretofore he has had no idea of how commodities which he uses daily are handled and made, he is bound to be interested. The proof of this has been that we have received dozens and dozens of letters from college professors and instructors in various schools, claiming they have read the advertisements about the process of manufacture of our products and would like to have a little more detailed information to pass on to their students. There is the danger, however, of being too technical for the lay mind and that is what we must watch.

The next factor, as mentioned above, we can pass over with very few words, namely, quality products. It is to be understood that any oil company to succeed in the long run must give the public dollar for dollar value and the best possible products. However, we do not go under the assumption of the old adage that, even though a man preaches a better sermon or builds a better mouse trap the world will carve a highway to his door. I do not believe this is true and it is by advertising and hard work, in conjunction with quality products, that an oil company will succeed in the domestic market.

The last factor—quality personnel—is just as important as the other two. I think that the personnel morale of many oil companies has been, and still is, sagging by the executives not giving enough attention to keeping to the highest pitch possible the morale and ambitions of every man from tank wagon driver up the line. Here again, people are human with respect to their walk in life and they are naturally ambitious. It does no good whatever for companies to employ bright young men, have the personnel department give them glowing promises as to their future if they work hard and behave themselves, and then drop the matter there. The men are bound to become discouraged and this discouragement is going to show in their approach to the public with a subsequent loss to the company. I realize that with any large company this situation is very difficult when there are thousands of men to try to watch and take care of, but we have conscientiously and, I think with some degree of success, tried to have a personal touch with every man possible, and have tried to instill into the immediate superiors down the line this particular thought and aim. It is necessary, of course, to employ yearly many outside men for the lower positions, especially service station and tank wagon jobs, but we have conscientiously and positively refrained, unless absolutely necessary, to go into the world to obtain men for key positions or even minor executives. With the growth and expansion of the company we have been promoting from within, I believe, if not being too egotistical, to a much greater degree than a large number of our competitors. This builds morale. From time to time in contracting with executives of other oil companies I have been asked repeatedly the rather flattering question of "How do you account for such a tremendous increase in the sales of your company in the past two years?" My answer has always been "Quality advertising, quality products and quality personnel." To the extent of how strong the enthusiasm and morale is of most of our employes, it is rather amusing and sometimes most embarrassing, to say nothing of occasional legal complications which have happened repeatedly, when some of our competitors make disparaging remarks to our tank wagon drivers, to have them crawl down from their tank wagons and engage in fist fights to protect the interest of the company. This in my mind spells true enthusiasm and loyalty.

IMPORTANCE OF DIXIE POOL IN LOUISIANA

(Continued from Page 33)

Island were raised about 1,500 feet higher than in the surrounding area, and at Bellevue the uplift was about 2,000 feet.

During and after the period of uplift, these structurally high areas were eroded almost to base level. Erosion continued during the Woodbine so that just before the next depression and the beginning of Tokio deposition the Sabine uplift was a low flat island. No source for coarse sediments being present the lower Tokio is predominantly shale.

During the remainder of the upper Cretaceous, subsidence was almost continuous, but there were two periods of shallow water deposition, with a source of coarser materials to the north, when the lower Ozan and Nacatoch sand beds were deposited.

There is an unconformity between the Arkadelphia and the Eocene Midway formation which represents a considerable period of time, but there is no evidence that any great thickness of beds was removed from the top of the Arkadelphia by erosion.

Midway Mostly Marine

The greater part of the Midway is marine, laid down in shallow water supplied only with fine clay sediment. At the close of the Midway the sea withdrew to the south and the nonmarine Wilcox was deposited. The basal marine Claiborne (Cane River formation) is found on all sides of the Sabine uplift and has probably been removed from the top during the present cycle of erosion. There is no evidence that any formations younger than the Claiborne were ever laid down over the uplift, although the Jackson sea extended much farther north in the Mississippi embayment to the east.

The folding in the Eocene is in general similar to that in both upper and lower Cretaceous but less intense. A part of the Eocene structure may be due to differential compacting in the thicker deposits off the old structural highs, but some is undoubtedly due to later movement along the older structural axes. The post-Eocene warping and tilting of all Northwest Louisiana southeastward toward the center of the Mississippi embayment was accompanied by stresses from the southeast, which formed a series of minor northeast-southwest folds, crossing the major axes of the Sabine uplift and other older structures, and accompanied by some faulting. For instance, a northeast-southwest fault cutting the Eocene has been determined by drilling near Rodessa on the northwest flank of the Sabine uplift.

Production Data

The total production of the Dixie Field to January 1, 1930, was 588,000 bbls. The oil is of the Caddo light type and is a little above 42° gravity. The total value of this oil was over $1,000,000.

The graphs show the average daily production by weeks for one of the largest wells, Standard Oil Co. of Louisiana's No. 1 School Board (Figure 3); and the total daily production and average daily production per well for the entire pool. (Figure 4.)

It is not yet possible to make close estimates on the ultimate total recovery from the entire pool. There are several hundred acres adjacent to production and not condemned by drilling which may contain small sand lenses that will be highly productive. However, it is not to be expected that any wells in the Dixie area will be as large as some in the western part of the Caddo Field; where for example the Standard Oil Co. of Louisiana's No. 58 Stiles at Trees City produced over 1,800,000 bbls. and the Gulf Refining Co.'s No. 215 Ferry Lake near Mooringsport produced over 1,300,000 bbls. to January 1, 1930. Such wells on the west flank of the uplift produce wholly or in part from the lower Cretaceous, probably from faults or inclined sand beds in the Washita formation.

TULSA LABORATORY CHANGE

H. R. Rowe and R. L. Ginter dissolved partnership in the Tulsa Laboratories, Inc., April 1, Mr. Rowe taking over the business and equipment of that concern and R. L. Ginter forming the Ginter Chemical Laboratory and establishing headquarters at 118 West Cameron Street, Tulsa. Each of these laboratories will continue to carry on the same class of work such as distillation tests on crude oils, treatment of oils as applied to refining problems, oil well water analysis and general chemical research work.

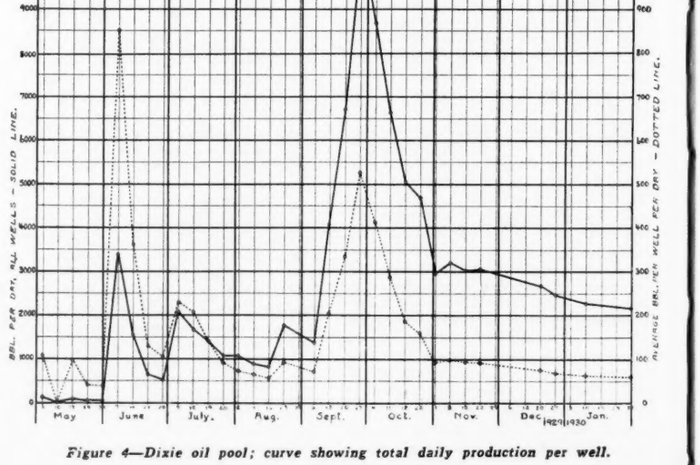


Figure 4—Dixie oil pool; curve showing total daily production per well.

WEST TEXAS FIELDS

(Continued from Page 63)

well was 100 bbls. of oil and 300 bbls. of water.

American-Maracaibo's No. 2-D Settles had a show of oil from 2,390-2,560 feet and was shot with 80 quarts. This well was also shot with 155 quarts from 2,470-2,540 feet, and with 100 quarts from 2,458-2,552 feet, and made an initial production of 155 bbls.

Humble Oil & Refining Co.'s No. 9 Clay encountered what was thought to be the pay sand at 2,912-24 feet, was shot twice, but pumped only 1 bbl. of oil. The well was dry and abandoned at 2,946 feet.

Nolan County

Gibson & Johnson's No. 1 Bond was dry and abandoned at a total depth of 3,282 feet.

Pecos County

Cardinal Oil Co.'s No. 7 Toborg reached the top of the pay at 322 feet, was drilled to a total depth of 426 feet, and made an initial production of 500 bbls. per day.

Cardinal Oil Co.'s No. 1 Tippett encountered the top of the pay at 440 feet, was drilled to a total depth of 525 feet, and had an initial production of 250 bbls.

Cosden Oil Co.'s No. 1 McDonald was dry and abandoned at a total depth of 2,016 feet.

Dixie Oil Co.'s No. 4 Toborg encountered the top of the pay at 295 feet, was drilled to a total depth of 425 feet and had an initial production of 135 bbls. in 12 hours.

Griffith's No. 1 Ferrenbach and others was dry and abandoned at a total depth of 2,850 feet.

Simms Oil Co.'s No. 1 University was dry and abandoned at a total depth of 2,384 feet.

Ward County

Gulf Production Co.'s No. 7 O'Brien was dry and abandoned at a total depth of 3,566 feet.

PANHANDLE FIELDS

(Continued from Page 64)

of 3,335 feet, plugged back to 3,316 feet and made an initial production of 45 bbls. The top of the pay was encountered at 3,160 feet.

Phillips Petroleum Co.'s No. 1 Combs-Worley reached the top of the pay at 2,850 feet. This well had 40,000,000 feet of gas from 2,784-2,870 feet, and was drilled to a total depth of 2,870 feet where the initial production was 1,300 bbls.

Phillips Petroleum Co.'s No. 2 Wright (Wood) reached the top of the pay at 2,840 feet and was drilled to a total depth of 2,850 feet. At 2,653 feet the well made 15,000,000 feet of gas. The initial production was 3,325 bbls. of oil.

Travis-Reiger's No. 1 Mackie was completed a gas well at a total depth of 3,360 feet. Nineteen million feet of gas was encountered from 2,685-3,340 feet.

Wilcox-Pampa Oil Co.'s No. 13 Combs-Worley reached the top of the pay at 2,785 feet and was drilled to a total depth of 2,814 feet. The initial production was 3,650 bbls.

Wheeler County

Gibson Oil Corp.'s No. 9 Bentley was completed at a total depth of 2,339 feet with 5,000,000 feet of gas coming from 2,208-2,300 feet. Initial production was 615 bbls. of oil and 205 bbls. of water. Top of the pay in this well was encountered at 2,300 feet.

Murchison & Fain's No. 11 Close was drilled to a total depth of 1,510 feet. Initial production was 5,000,000 feet of gas from 1,496-1,510 feet.

WICHITA FALLS COMPLETIONS
Week ending April 26
Archer County

Shappell Oil Co.'s No. 48 Jackson was dry and abandoned at a total depth of 1,808 feet. E. J. Stump's No. 1 White was dry and abandoned at 1,649 feet total depth. L. T. Burns' No. 4 Falls reached top of the pay at 1,372 feet and was drilled to total depth of 1,374 feet at which an initial production of 260 bbls. was made. Consolidated Oil Co. of Texas' No. 3 Harmel encountered top of the pay at 1,427 feet and was drilled to total depth of 1,442 feet, initial production 60 bbls. Cullum and others' No. 7 Falls Co. fee reached top of the pay at 1,123 feet, was drilled to total depth of 1,143 feet; initial production 51 bbls. Cullum and others' No. 1 Pastusek was dry and abandoned at 1,475 feet total depth. Golding-Cochran and others' No. 2 Phillips was dry and abandoned at total depth of 1,220 feet. T. F. Hunter's No. 1 Morrison was dry and abandoned at total depth of 1,301 feet. Johnson and others' No. 1 Hamilton was also dry, and abandoned at total depth of 1,206 feet. Lawson-Duke and others' No. 4 Young was dry and abandoned at total depth of 1,475 feet. Lomax & Lincoln's No. 1 Carvey was dry and abandoned at total depth of 1,556 feet. J. H. Massie's No. 8 Richardson reached top of the pay at 1,358 feet, and was drilled to total depth of 1,369 feet, initial production 148 bbls. Pandem Oil Corp.'s No. 7 Young encountered top of the pay at 1,393 feet; initial production 168 bbls. from total depth of 1,406 feet. Shappell Oil Co.'s No. 18 Prideaux was dry and abandoned at total depth of 685 feet. Underwood Drilling Co.'s No. 1 Ward Brothers was dry and abandoned at total depth of 1,301 feet.

Baylor County

Grisham & Barnsdall's No. 2 Portwood reached top of the pay at 1,384 feet, and was drilled to total depth of 1,399 feet; initial production 200 bbls.

Montague County

Arco Oil Co.'s No. 2 Salmon reached top of the pay at 1,668 feet, drilled to total depth of 1,702 feet; initial production 195 bbls. Bridwell Oil Co.'s No. 3 Dennis encountered top of the pay at 1,688 feet, completed at total depth 1,716 feet; initial production 70 bbls.

Wichita County

United Producers Co.'s No. 14 Hodges encountered oil sand at 1,752 feet, drilled to total depth of 1,769 feet; initial production 80 bbls.

Young County

Atlantic Oil Producing Co.'s No. 1 Keen encountered top of the pay at 894 feet, total depth 902 feet; initial production 7 bbls. Benson Brothers' No. 1 Jeffrey was dry and abandoned at total depth of 918 feet. Cato & Hammon's No. 1 Minor reached top of the pay at 1,052 feet, drilled to total depth of 1,070 feet; initial production 240 bbls. P. K. Deats' No. 1 Barnett and others was dry and abandoned at 732 feet. J. M. Dunn's No. 2 Doyle was dry and abandoned at 1,102 feet. Elliott and others' No. 1 Howard was dry and abandoned at 1,040 feet. Fain-McGaha Corp.'s No. 1 fee encountered top of the pay at 1,045 feet, drilled to total depth of 1,075 feet; initial production 157 bbls. Flowers & Barkley's No. 1 Swetlich was dry and abandoned at 1,301 feet. T. F. Hunter's No. 2 Benson reached top of the pay at 1,049 feet, total depth 1,080 feet; initial production 15 bbls.

Hunter Oil Corp.'s No. 1 Doyle encountered top of the pay at 1,055 feet, total depth 1,082 feet; initial production 180 bbls. Moran Drilling Co.'s No. 1 Larimore was dry and abandoned at 705 feet. Morris & Dunn's No. 1 Ranten was dry and abandoned at 818 feet. A. H. Parks' No. 2 Hall reached top of pay at 878 feet, drilled to total depth of 892 feet; initial production 48 bbls. Perkins & Cullum's No. 4 Dunagan encountered top of pay at 1,041 feet; initial production 275 bbls. from total depth of 1,079 feet. Perkins & Cullum's No. 5 Dunagan reached top of pay at 1,043 feet, drilled to total depth of 1,072 feet; initial production 230 bbls. Petroleum Producers and Madden's No. 6 Deitrich was dry and abandoned at 1,202 feet total depth. E. R. Riggs' No. 1 Andrews was dry and abandoned at 938 feet. Riner & Omohundro's No. 2 Keith encountered top of pay at 664 feet, and was completed at total depth of 674 feet; initial production 15 bbls. Sharp and others' No. 3 Edwards reached top of pay at 1,203 feet, completed at total depth of 1,217 feet; initial production 20 bbls. Staffords' No. 1 Bolding was dry and abandoned at 752 feet. The Texas Company and Consolidated's No. 2 Carpenter was dry and abandoned at 1,005 feet. Woods' No. 1 McKinney was dry and abandoned at 1,206 feet. Wooten & Reed's No. 1 Wilson was dry and abandoned at 898 feet. Christie Brothers and others' No. 1 Kisinger was dry and abandoned at 2,597 feet. Shell Petroleum Corp.'s No. 1 Kisinger reached top of pay at 2,536 feet, total depth 2,573 feet; initial production 192 bbls. Texas Pacific Coal & Oil Co.'s No. 7 Donnell reached top of pay at 4,185 feet, drilled to total depth of 4,199 feet; shot with 10 quarts from 4,185-95 feet; initial production 40 bbls.

RANGER COMPLETIONS
Week Ending April 26
Callahan County

Culberson Brothers and others' No. 1 Alexander was dry and abandoned at 1,417 feet. Prairie Oil & Gas Co.'s No. 1 Kelton was dry and abandoned at 814 feet.

Coleman County

Anzac Oil Co.'s No. 2 McAdams was dry and abandoned at 320 feet. Atlantic Oil Producing Co.'s No. 3-B Overall was dry and abandoned at 2,187 feet. Continental Oil Co. and others' No. 16 Overall was dry and abandoned at 2,525 feet. Lloyd Oil Corp.'s No. 8 Bartholomew encountered gas sand from 1,434-35 feet, and oil sand from 1,435-39 feet; completed at total depth of 1,439 feet; initial production 35 bbls. McCamey & Whitfield's No. 3 Overall was dry and abandoned at 1,515 feet. Syndicate Oil Co.'s No. 1 Miller was dry and abandoned at 3,075 feet.

Comanche County

Sun Oil Co. and others' No. 2 Bryson was dry and abandoned at 2,995 feet.

Palo Pinto County

Brazos River Oil & Gas Co.'s No. 1 McAvoy was completed at 1,379 feet; initial production 3,000,000 feet of gas from sand at 1,351-69 feet.

Shackelford County

Hope Oil & Gas Co.'s No. 1 Newell was dry and abandoned at 1,778 feet. Maunts' No. 1 Lones was dry and abandoned at 903 feet. Phillips Petroleum Co.'s No. 10 Parish was dry and abandoned at 2,185 feet.

Stephens County

W. J. Rhodes' No. 1 West reached top of pay at 2,121 feet; completed at total depth of 2,136 feet; initial production 18 bbls.

GASOLINE ENGINE NEED FEAR NO SUBSTITUTE

(Continued from Page 29)

chemists and others interested in testing methods are invited to make this trip and see the latest work of the Bureau of Standards in the petroleum field.

P. S. Tarbox of the Independent Refining Co., trustee in charge of the Department of Manufacture, said the group meetings and the visit to the Standard Oil Co. of Ohio refinery at Cleveland, Ohio, last year had been the high points in the department's activities. The group meetings are held at several points and are attended by plant operators who discuss mutual problems supplemented with visits to plants. A number of refiners in the Bradford and Oil City area for several years have carried on co-operative fuel programs with H. A. Ross in charge. Mr. Tarbox presented data showing large fuel savings.

The outstandnig accomplishment of the Department of Trade and Commerce has been the securance of more accurate data covering the operations of refiners in the Pennsylvania field. The Bureau of Mines at Washington since the first of the year has been collecting separate data covering the production of Pennsylvania grade crude oil and output of refined products from this oil. This has given information which has been desired for some time due to the wide distribution of lubricating oils made from Pennsylvania grade crude oil. N. H. Weber of the Pure Oil Co. is in charge of this department.

Scientific Research

G. C. Davison of the Tri-State Refining Co., in charge of a new department which will devote its activities to scientific research problems, explained plans to carry on a co-operative study of research problems.

He discussed briefly the importance of thermodynamics as a basis for a fundamental study in new processing methods at refineries. The committee expects to complete arrangements by which members will have the advantage of expert advice in solving present manufacturing problems and basic information in considering any new developments.

Conewango Wins Contest

The first aid team of the Conewango Refining Co., Warren, Pa., won the contest held Thursday afternoon. The Kendall Refining Co. of Bradford, Pa., was second; plant No. 2 of the Standard Oil Co. of Ohio, Cleveland, Ohio, third; plant No. 1 of the Standard Oil Co. of Ohio, fourth, and the Independent Refining Co., fifth. These teams were trained by the United States Bureau of Mines, whose staff has spent considerable time with Pennsylvania refiners during the past year. Representatives of the bureau were judges in the contest. Prizes were given the winners by R. A. Wotowich, Henry L. Doherty & Co., representing the board of trustees.

The entire afternoon was devoted to fire and safety work. Talks were made by Mr. Wotowitch, who is trustee in charge of the Department of Fire Prevention and Safety, and Houston Dunn, secretary of the National Petroleum Mutual Fire Insurance Co.

Oil Industry in Russia

H. S. Bell, petroleum engineer of New York City, entertained the members with a talk illustrated with movie films taken by Mr. Bell in a recent trip to Russia where he was in the employ of the Soviet government. The pictures included views of refinery equipment recently manufactured and installed by American manufacturers.

Adopt Resolution

The association by unanimous action adopted a resolution commending the Federal Oil Board and other agencies for their recent accomplishments in bringing about greater conservation of crude oil and refined products.

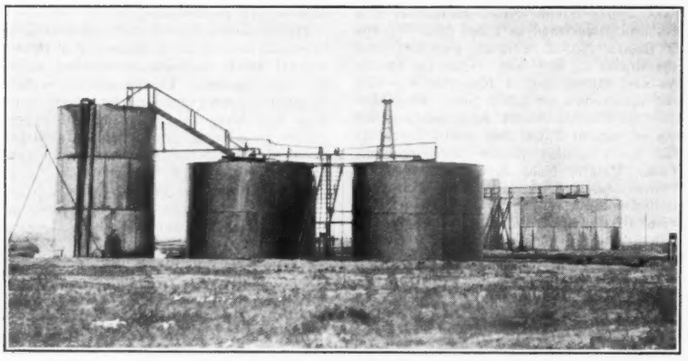
Philokla Co. Will Find Market for Oklahoma City Gas

Phillips Petroleum Co. announces the formation, in conjunction with Oklahoma Natural Gas Corp. interests, of the Philokla Gas Co. The new company, in which the Phillips and Oklahoma Natural interests are equal, will have as its purpose the compressing of natural gas from the Oklahoma City Field after the gas has passed through the Phillips plants for the extraction of gasoline. The proposed plant will have a capacity of 25,000,000 feet daily.

The Phillips company has large prospective gas reserves in the Oklahoma City Field in addition to having entered into gas purchase contracts with many producers and are erecting two natural gasoline plants in that field with a total capacity of 100,000,000 feet daily, subject to further expansion, according to company officials.

After the gasoline has been extracted, according to the plan announced today, the gas will go to the compressors of the Philokla Co., where its pressure will be increased. The repressured gas then will be marketed by the Oklahoma Natural Gas Corp., going either into the gas company's retail distribution transmission lines or to the producers in the field to be used for lifting oil, when the field pressure is reduced to a point where the wells no longer will flow naturally. This plan, according to its sponsors, will obviate the necessity for the construction by individual operators of repressuring plants with which to lift their own oil.

"Being primarily an Oklahoma company, interested in the conservation of Oklahoma resources," said Frank Phillips, "we are particularly gratified at entering into an arrangement with this well-known gas utility organization in Oklahoma City, which we feel will go a long way toward conserving Oklahoma's gas for the benefit of Oklahoma."



One 1500-Bbl., two 1000-Bbl. and two 750-Bbl. Maloneys in the Pearce Junction Field, near Houston. Erected by Peer Bolted Steel Tank Co., Distributers, Houston District.

Maloney *Vapor-Pressure* Tanks

Protect Your Oil and Your Tank Investment

MALONEY *Vapor-Pressure* Flow and Stock Tanks are properly manufactured to afford full protection to oil in lease storage. Equipped to hold vapor pressures up to 16 ounces, and built to handle such pressures safely, they eliminate the breathing losses which often cause oil to drop into lower gravity and price groups.

These tanks are also manufactured to stand up through long service. Built throughout of rust-resisting Keystone Copper Steel, 12-gauge, their exceptional durability protects your tank investment just as their vapor-pressure construction protects your oil.

"Alone in Quality"

MALONEY TANK MFG. CO.
Tulsa, Okla., U. S. A.

Distributers at All Principal Petroleum Points

Maloney A.P.I. Bolted Steel Tanks conform with A.P.I. dimensional standards and carry the official A.P.I. monogram.

MADE OF KEYSTONE AMERICAN

MALONEY PATENTED BOLTED COPPER-STEEL TANKS

MALONEY ALONE

PIPE MILL OPERATIONS FULLY 65 PER CENT

By B. E. V. Luty

PITTSBURGH, Pa., Apr. 28.—Pipe and tube mill operations have increased somewhat farther in the past week, being now estimated at fully 65 per cent, which is rather a high rate, all things considered, as there has been a surplus of pipe capacity. No large or moderate sized orders for line pipe have been reported in the past week, but there is quite a run of very small orders, down to a single mile sometimes, and this in the aggregate gives the pipe mills a good bit of work.

Demand for standard or merchant pipe has been increasing somewhat from week to week. The seasonal increase was slow in coming and it has not carried demand up to the level at this date last year or year before, but the improvement seems to be a healthy one at that.

Prices on tubular goods are quite steady all along the line. There is no full explanation, satisfactory to all observers, as to exactly why prices were reduced as they were April 1, standard pipe and line pipe card discounts being increased two points, while oil country goods were revised in keeping.

The total volume of steel business shows scarcely any perceptible change from week to week, but on the whole there seems to have been a distinct increase in the past 30 days or more, reversing the slight downward trend of late February and early March. No lines of consumption show any conspicuous increase or decrease.

Buying of steel by the agricultural implement industry is fully sustained and at a high rate. Orders placed to date cover supplies of steel, at the recent rate, for fully half the time left until July 1, when regularly the implement industry has some slowing down.

Fabricated structural steel statistics for March, just issued by the Department of Commerce, make a particularly interesting showing, decidedly favorable when in general there has been a depression. Shipments of the structural fabricating shops during the first three months of the year totaled 812,000 tons, actually 1½ per cent above shipments in the same period of last year. Bookings were not particularly heavy, but they were fair. The stock market collapse began late in October, and lettings during the next five months are therefore of particular interest. They averaged 263,740 tons a month, which is only 4 per cent under the average during the whole year 1928 and is above the monthly average in any preceding year. Comparing monthly bookings and shipments it appears that the shops had on October 1 their largest order book for a long time, but in the intervening six months, to April 1, they have lost, by excess of shipments, an amount equal to less than one week of work.

Class I railroads report they had on order April 1, 37,117 freight cars, which is the largest number since July 1, 1929. Variations from month to month have been slight, however. Since April 1 there has been very little freight car buying, and not much is expected in the next few months, but it is easy to see that the car shops will maintain approximately their present and recent rate of steel consumption, not particularly large, for three or four months at least.

In last report it was estimated that steel ingot production in a few weeks past had been at close to 50,000,000 tons a year. The present rate may be estimated at fully 50,000,000 tons, perhaps a trifle more, and 50,000,000 tons would be about 78 per cent of present capacity. The same tonnage would have represented larger percentages in the past, as capacity has been growing continuously. With the large amount of construction now it will probably increase more this year than in other years. That accounts for the strenuous competition in most lines, also the desire to merge.

SHEEHAN SAFETY CAMPAIGN

Marking the beginning of a safety campaign, the Sheehan Pipe Line Construction Co., Tulsa, gave a dinner Tuesday evening of this week in the New Hotel Tulsa. Employes of the company were guests and talks were given on the importance of safety first rules in pipe line construction. John B. Sheehan, secretary and treasurer, has been active in the preliminary work of establishing organized safety observance.

WILDCAT OPERATIONS IN TEXAS PANHANDLE

(Continued from Page 64)

Skelly Oil Co.'s No. 19 Schafer, 330 ft. N, 990 ft. E, SW cor. NE, Sec. 198, Blk. 3, I.&G.N. Sur. ..... 6,000,000 ft. gas 2,895-2,970 ft.; S.D. 3,100 ft. by agreement.

Suloch Oil Co.'s No. 1 Bost, 990 ft. S. 330 ft. E. SW, Sec. 1, Blk. S&F. ..... Location.

Texas Interstate P. L. Co.'s No. 1 Burnett, 1,320 ft. N, 660 ft. W, of W 480 ac., Sec. 99, Blk. 5, I.&G.N. Sur. Drlg. 500 ft.

Texas Interstate P. L. Co.'s No. 1 Sanford, C NW NE, Sec. 4, Blk. 3, A.B.&M. Sur. ..... Drlg. 1,050 ft.

L. W. Timm's No. 2 Garnet (White Deer), 330 ft. S and W, NE cor., Sec. 104, Blk. 4, I.&G.N.R.R. Sur. .. Drlg. 2,865 ft.

CASTRO COUNTY

Colorado O. & R. Co.'s No. 1 Slemmons, SW cor., Sec. 73, Blk. M-17, B.S.&F. Sur. ..... Rig blown down.

Mystery Oil Co.'s No. 1 J. I. Crum, SE cor. NE, Sec. 333, Blk. M-6, S.K.&K. Sur. ..... S.D. 510 ft. for csg.

CHILDRESS COUNTY

Continental Oil Co. and Sun Oil Co.'s No. 1 Johnson, 660 ft. NE, Sec. 580, Blk. H, W.&N.W. Sur. ..... Drlg. 2,775 ft.

C. L. Sloane et al's No. 1 B. P. Smith, Sec. 49, F. P. Knott lands ..... T.D. 5,000 ft.; C.O.

COCHRAN COUNTY

Westbrook et al's No. 1 Slaughter, 400 ft. S and E, Labour 67, League 118, Knox Co. School Lands ..... Drlg. 5,200 ft.

COLLINGSWORTH COUNTY

Shoupe Bros.' No. 1 Aldus, 410 ft. N, 330 ft. E. Sec. 96, Blk. 16. H.&G.N.R.R. Sur. ..... Show oil and gas 1,678 ft; bailed estimate 10 bbls. first day from G.W. 2,194-98 ft; drlg. 2,260 ft.

Shoupe Bros. No. 1 Whitson, 330 ft. N and E, SW, Sec. 33, Blk. 12, H.&G.N.R.R. Sur. ..... Spudded and S.D.

DONLEY COUNTY

Blue Bonnett Oil Co.'s No. 1 Ball, 1,075 ft. N line, 985 ft. E line, Sec. 22, Blk. E, D.&P.R.R. Sur. ..... T.D. 3,006 ft.; contract depth.

Marine Oil Co.'s No. 1 Sawyer, C SW, Sec. 5, Blk. G, G.C.&S.F. Sur. ..... S.D. 4,000 ft.

GRAY COUNTY

Adams Oil Co.'s No. 4 Morse, 330 ft. S, and W, NE cor., Sec. 3, Blk. 26, H.&G.N.R.R. Sur. ..... Drlg. 2,545 ft; 500 ft. oil in hole

Baldridge & Lilley's No. 1 Melton, 330 ft. N and W, E½, SE, Sec. 95, Blk. B-2, H.&G.N.R.R. Sur. ..... Drlg. 815 ft.

Camel Oil Co.'s No. 2-B Harrah, 330 ft. N and E, Sec. 150, Blk. 3, I.&G.N.R.R. Sur. ..... Drlg. 3,200 ft; estimated 150 bbls. daily; T.P. 3,170 ft.

Cockrell-McIlroy Oil Co.'s No. 1 Castleberry, 330 ft S and E, Sec. 126, Blk. 3, I.&G.N. Sur. ..... Drlg. 2,665 ft.

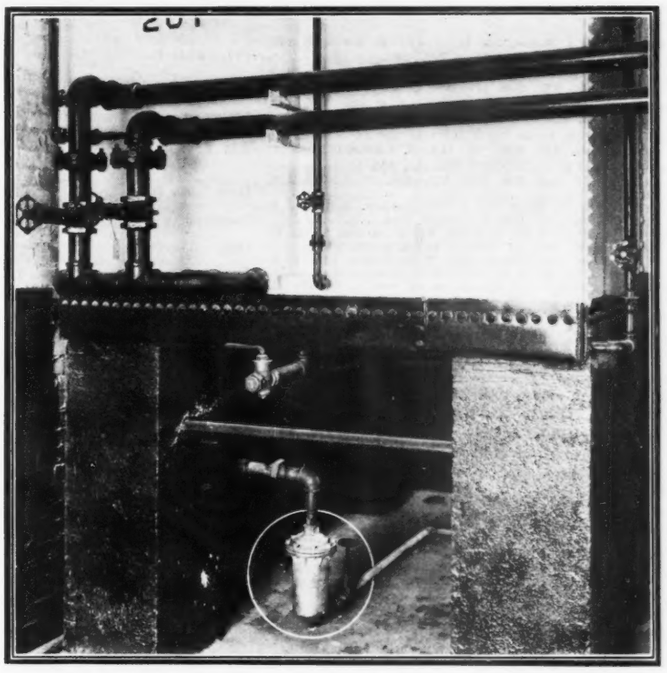
Cockrell-McIlroy Oil Co.'s No. 1 Sailor, 330 ft. out of NW SW NE, Sec. 138, Blk. 3, I.&G.N. ..... Location.

Constantine et al's No. 1 Crews, 330 ft. S and W, NE cor. SW, Sec. 20, Blk. 30, H.&G.N.R.R. Sur. ..... Shot 130 qts. 2,630-50 ft.; S.D. 2,838 ft.

Danciger O. & R. Co.'s No. 5 Morse, 330 ft. N and E, SW SW NW, Sec. 1, Blk. 26, H.&G.N.R.R. Sur. ..... S.D. 2,505 ft.

Danciger O. & R. Co.'s No. 1 Shaw, 330 ft. S, 286 ft. E of E 39½ ac., NW, Sec. 5, Blk. 1, A.C.H.&B. Sur. .. T.D. 2,588 ft.

Let our 90-day free trial prove it!



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For this reason we give you the privilege of testing as many Armstrong traps as desired on your own steam lines and equipment, for 90 days without obligation. At the end of the test period return them to us collect.

Prove to your own satisfaction that these traps have *all* the qualifications for completely satisfactory performance—such as: no airbinding . . . no clogging from scum or sediment; self-scrubbing . . . small enough to be supported by connecting pipes . . . large capacity . . . no steam leakage; no wire drawing . . . practically attentionless operation . . . made, guaranteed, and serviced by an organization that has specialized exclusively on steam traps for 19 years.

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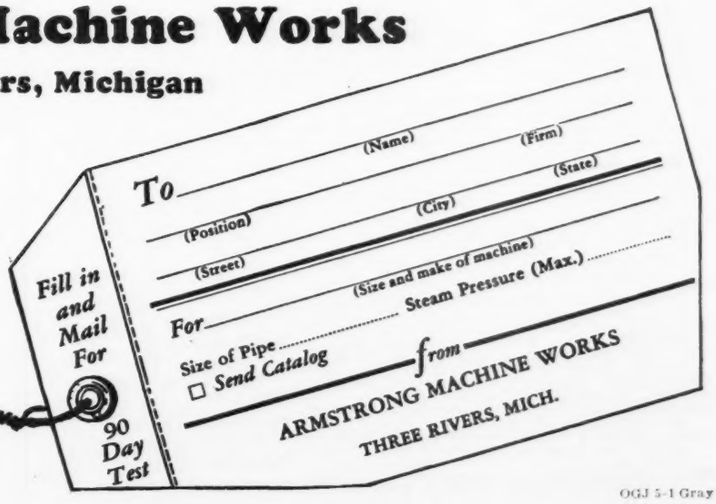


OGJ 5-1 Gray

Danciger O. & R. Co.'s No. 1 Williams, 330 ft. N, 330 ft. E. S½ NW ..... Estimated 15,000,000 ft. gas 2,610-70 ft; S.D. 2,692 ft; T.P. 2,-680 ft.

Dunlop's No. 4 Morse, 330 ft. N and E, SW cor. SW, Sec. 17, Blk. A-9, H.&G.N.R.R. Sur. ..... Drlg. 2,558 ft.

Empire G. & F. Co.'s No. 1-B Archer, 330 ft. each way of SW cor. SW, Sec. 139, Blk. 3, I.&G.N. Sur. ..... Drlg. 1,480 ft.

Empire G. & F. Co.'s No. 2 Hexter, C SE, Sec. 235, Blk. B0Z, H.&G.N. Sur. ..... Location.

Empire G. & F. Co.'s No. 1 Meer-B, 330 ft. S line, 990 ft. W line, SW, Sec. 106, Blk. 3, I.&G.N.R.R. Sur.... S.D. 2,562 ft.

Empire G. & F. Co.'s No. 1 Shields, 330 ft. each way out of SE cor. NE, Sec. 151, Blk. 3, I.&G.N.R.R. Sur. ..... Drlg. 2,330 ft.

Empire G. & F. Co.'s No. 1 Whittemore, 2,310 ft. N and W, Sec. 14, Blk. 4, I.&G.N. Sur. ..... Location.

Follett Pet. Corp.'s No. 1 Hood, 330 ft. S and W of W 80 ac., SW, Sec. 32, Blk. 3, H.&G.N.R.R. Sur. ..... Drlg. 3,135 ft.

Gardner Bros. and Collins' No. 2 Saunders, 955 ft. S, 330 ft. E of W 68 ac., E½, J. G. Eustice Sur. ..... Location.

Gulf Prod. Co.'s No. 2 Combs et al, 990 ft. N, 330 ft. W, SE cor., Sec. 38, Blk. 3, I.&G.N.R.R. Sur. ..... Cmtd. 8-in. 2,408 ft.

Humble O. & R. Co.'s No. 2 Combs-Worley, 240 ft. W line, 330 ft. N line, N½ SE, Sec. 36, Blk. 3, I.&G. N.R.R. Sur. ..... Drlg. 2,495 ft.

Humble O. & R. Co.'s No. 1 Young, C SW, Sec. 110, Blk. 3, I.&G.N. Sur. ..... Location.

LeFore Pet. Corp.'s No. 1 Wilson, 330 ft. N and E, Sec. 1, B.S.&F. Sur. ..... Location.

Lenix et al's No. 1 Bradford, 330 ft. N and E, W½ SE, Sec. 118, Blk. B-2, H.&G.N.R.R. Sur. ..... S.D. 1,010 ft.

Lyon et al's No. 1-A Morse, 330 ft. S and W, NW NW, Sec. 1, Blk. 26, H.&G.N.R.R. Sur. ..... Rigging up.

Jean Pet. Co.'s No. 1 Furneaux Bros., 330 ft. N and W cor. SE, Sec. 200, Blk. B-2, H.&T.N. Sur. ..... S.D. 1,200 ft.

Magnolia Pet. Co.'s No. 1 Cubine, 330 ft. N and W, NE, Sec. 36, Blk. 25, H.&G.N.R.R. Sur. ..... 9,000,000 ft. gas 2,325-35 ft; drlg. 2,690 ft.

Magnolia Pet. Co.'s No. 5 Magnolia, 990 ft. N, 330 ft. E, SW cor., Sec. 14, Blk. 3, I.&G.N.R.R. Sur. ..... Drlg. 2,475 ft.

McAuley et al's No. 4 Morse, 330 ft. N and W, SE cor. NE, Sec. 2, Blk. 26, H.&G.N.R.R. Sur. ..... Rig.

McIlroy Oil Co.'s No. 1 Vallmert, 330 ft. each way out of SE cor., NW, Sec. 140, Blk. 3, I.&G.N. Sur. ..... S.D. 1,100 ft.

Mid-Continent Pet. Corp.'s No. 1 Laugham, 330 ft. S and W, W 231½ ac., N 310½ ac., Sec. 1, Blk. B-2, H.&G.N. Sur. ..... S.D. 2,785 ft.

Operators Royalty Co.'s No. 1 Eddington, 330 ft. each way, NE cor. NW, Sec. 34, Blk. B-2, H.&G.N.R.R. Sur. ..... S.G. 2,655-93 ft.; T.P. 2,937 ft.; T. D. 3,028 ft.; spraying 30 bbls. per day.

Oil Operators' No. 1 Bowers, 330 ft. N, 330 ft. E. Sec. 93, Blk. B-2, H.&G.N. Sur. ..... Show oil and gas 2,400-17 ft.; S.O. 3,036-55 ft.; first gas 2,483 ft., increase at 2,500 ft., 2,544 ft. and 2,950 ft.; S.D. 3,090 ft.

Panhandle Ref. Co.'s No. 4 Saunders, 990 ft. N and 330 ft. E, SW cor. E½ NE, Sec. 3, Blk. 1, A.C. H.&B. Sur. ..... First gas 2,160 ft; 10,000,000 ft. gas 2,205-30 ft; S.D. 2,548 ft; flowing 20 bbls. per hr.

Prairie O. & G. Co.'s No. 2 Laugham, 330 ft. S and E, NW cor., W 230.3 ac. of S 310.5 ac., Sec. 1, Blk. B-2, H.&G.N. Sur. ..... S.D. 2,717 ft.

Prairie O. & G. Co.'s No. 1 Worley, 330 ft. each way out of NW cor. NW, Sec. 36, Blk. 3, I.&G.N.R.R. Sur.... Drlg. 2,630 ft.

Prairie O. & G. Co.'s No. 2 Worley, 330 ft. each way out of NE cor. NW, Sec. 36, Blk. 3, I.&G.N. Sur. ..... Drlg. 2,585 ft.

Prairie O. & G. Co.'s No. 3 Worley, 330 ft. each way out of SE cor. NW, Sec. 36, Blk. 3, I.&G.N.R.R. Sur.... Drlg. 2,630 ft.

Saulsbury et al's No. 1 Sheridan, 330 ft. S and E, W½ NE, Sec. 184, Blk. B-2, H.&G.N. Sur. ..... Location.

W. A. Scott's No. 1 Cobb, 330 ft. S, 425 ft. W, N½ SE, Sec. 184, Blk. 3, I.&G.N. Sur. ..... Location.

So. Pet. Expltn. Co.'s No. 1 Vaughn, 330 ft. N and W, SW, Sec. 138, Blk. 3, I.&G.N. Sur. ..... Location.

Reynolds et al's No. 1 Webb, 330 ft. N, 380 ft. E, NW, Sec. 60, Blk. 25, H.&G.N.R.R. Sur. ..... Fishing 2,370 ft.

Rieger & Steckoll's No. 1 Bohr, 330 ft. S and E, Sec. 37, Blk. B-3, H.&G.N. Sur. ..... S.D. 3,509 ft.

St. Clair Oil Co.'s No. 1 L. S. Stockton, SE cor., Sec. 35, W. R. Lee Sur. ..... Spudded and S.D.

Stover and Shell's No. 1 Saunders, 990 ft. N, 330 ft. E, N 100 ac. of W 149 ac., Sec. 3, B.&B. Sur. ..... 2,000,000 ft. gas 2,670-75 ft.; T.D. 2,956 ft.; shot 60 qts.; no results; C.O.

Sun Oil Co.'s No. 1 Combs-Worley, 330 ft. each way, SW cor. SE, Sec. 35, Blk. 3, I.&G.N. Sur. ..... S.G. 2,175 ft; fishing 2,820 ft.

The Texas Company's No. 15 Saunders, 330 ft. N and W, SE cor. W½ SE, Sec. 4, Blk. 1, A.C.H.&B. Sur.. Drlg. 2,930 ft; S.O. 2,930 ft.

Vulcan O. & G. Co.'s No. 1 Carpenter, 330 ft. N and W, W 80 ac., NW, Sec. 25, Blk. 25, H.&G.N.R.R. Sur. ..... Drlg. 2,233 ft.

Wilson et al's No. 1 Heaston, 330 ft. S and W, Sec. 160, Blk. B-2, H.&G.N.R.R. Sur. ..... S.D. 1,025 ft.

Wright Wilson, trustee's No. 1 Chapman, 175 ft. S and E lines, N½ NW, Sec. 69, Blk. 25, H.&G.N. Sur.... S.O. 2,685 ft.; S.D. 2,800 ft.

HARTLEY COUNTY

Dana O. & G. Co.'s No. 1 Fritz, C NE, Sec. 81, Blk. 44, H.&T.C.R.R. Sur. ..... S.D. 3,510 ft.

HUTCHINSON COUNTY

Alamosa Oil Co.'s No. 4 Sanford, 310 ft. S, 320 ft. W, NE cor. N 160 ac., S 240 ac., Sec. 85, Blk. 46, H. &T.C. Sur. ..... S.O. and wtr. 3,010-11 ft.; S.D. 3,-095 ft.

Alexander et al s No. 1 Johnson, 1,709 ft. E, 330 ft. N, N 80 ac., E½, E. T. Tomlinson Sur. ..... Drlg. 2,790 ft.

Continental Oil Co.'s No. 1 Johnson-E, 330 ft. N and E. SW cor. SE, Sec. 5, Blk. I, B.&B. Sur. ..... S.D. 3,108 ft; to run 8¼-in. csg.

Danciger O. & R. Co.'s No. 1 Cheatham, 330 ft. N and E. SW SE, Sec. 38, Blk. Y, A.&B. Sur. ..... Fishing 2,450 ft.

Danciger O. & R. Co.'s No. 3 Moore, 330 ft. S and E, NW W½ SE, Sec. 125, Blk. 4, I.&G.N.R.R. Sur. ..... 1,000 ft. oil in hole; T.P. 3,003-20 ft.; S.D. 3,030 ft.

Danciger O. & R. Co.'s No. 4 Moore, 330 ft. N and E, SW cor. W½ SE, Sec. 125, Blk. 4, I.&G.N.R.R. Sur.. Rigging up standard tools; T.D. 2,825 ft.

Dixon Creek Oil Co.'s No. 1 Cheatham, 990 ft. E, 330 ft. S, N½ SE, Sec. 38, Blk. Y ..... S.D. 3,076 ft; T.P. 3,064 ft; 40 bbls. first 24 hrs.

Dixon Creek Oil Co.'s No. 2 Cheatham, 330 ft. N, 1,650 ft. W, SE cor. N½ SE, Sec. 38, Blk. Y ..... Drlg. 2,785 ft.

Dixon Creek Oil Co.'s No. 1 Johnson Bros., 50 ft. S, 330 ft. W, NE cor. E 80 ac., J. Gammon Sur. ..... Drlg. 2,928 ft.

Huey et al's No. 3 Smith et al, 330 ft. N, 660 ft. W, S 40 ac., E 100 ac., SE, Sec. 12, Blk. Y ..... S.D. 2,702 ft.

Midwest Expltn. Co.'s No. 1-B Garner et al, 330 ft. N, 990 ft. W, Sec. 124, Blk. 4, I.&G.N.R.R. Sur. ..... Drlg. 1,400 ft.

Phillips Pet. Co.'s No. 2 Cheatham, 330 ft. S and E, NW cor. SE SE, Sec. 38, Blk. Y ..... Set 8-in. csg. 3,030 ft.

Phillips Pet. Co.'s No. 1 Johnson-Burl, 330 ft. S and W, NE cor. W 240 ac., N 320 ac., Sec. 4, Blk. 1, B.&B. Sur. ..... Drlg. 2,720 ft.

Phillips Pet. Co.'s No. 1 Johnson-Juanita, 330 ft. N and W, SE cor. W½, Sec. 5, Blk. I, B.&B. Sur. ..... Drlg. 3,216 ft.

Phillips Pet. Co.'s No. 1 Johnson-Trammel, 930 ft. N, 330 ft. W, SE cor. W½ NW, Sec. 38, Blk. Y ..... S.O. 3,060 ft; drlg. 3,117 ft.

Phillips Pet. Co.'s No. 1 Johnson-Mayer, 990 ft. N and 990 ft. W line, NE, Sec. 37, Blk. Y, A.&B. Sur. ..... Drlg. 2,874 ft.

Phillips Pet. Co.'s No. 1 Johnson-Royal, 330 ft. S and E, NW cor. E½ NW, Sec. 34, Blk. Y ..... Set 8-in. csg. 2,943 ft.

Phillips Pet. Co.s No. 1 Johnson-Rudy, 330 ft. W, 330 ft. S. SW SW, Sec. 30, Blk. Y, A.&B. Sur. ..... Drlg. 2,470 ft.

Phillips Pet. Co.'s No. 1 Vake (Hazel), 330 ft. N and W, Sec. 4, Blk. XO2, H.O.&B. Sur. ..... Rigging up.

Spurlock et al's No. 1-A Christian, 440 ft. S, 330 ft. W, NE cor. SE SE, Sec. 33, Blk. Y ..... Drlg. 2,085 ft.

Spurlock Oil Co.'s No. 1 Bost, 330 ft. S, 330 ft. E, SW Sec. 1, B.S.&S.F. Sur. ..... Building rig.

The Texas Company's No. 5 Moore, 330 ft. N and W, SE cor. SW, Sec. 125, Blk. 4, I.&G.N.R.R. Sur. ..... Drlg. 2,730 ft.

Texarado Oil Co.'s No. 2 Stanford, 330 ft. S, 990 ft. W, NE cor. N 80 ac., S 160 ac., Sec. 83, Blk. 46, H.& T.C.R.R. Sur. ..... Drlg. 2,900 ft.

Texas State Oil Co.'s No. 1 Dunaway, 330 ft. S and W, NE. Sec. 5, Blk. 2-Y, T.T.&R.R. Sur. ..... Location.

LAMB COUNTY

Graham O. & G. Co. et al's No. 1 Ellwood, CWL, Sec. 9, Blk. T, T. A. Thompson Sur. ..... S.D. 4,408 ft.

LIPSCOMB COUNTY

Brown et al's No. 1 Box T Ranch, SW NE, Sec. 612, H.&T.C. Sur. ..... S.G. 3,760 ft; S.D. 3,840 ft.

Okla. Public Service Co.'s No. 1 C. W. Jones, NE SW, Sec. 100, H.&T.C. Sur. ..... Fishing 4,954 ft.

LUBBOCK COUNTY

Center Oil Co.'s No. 1 Bowles Ranch ..... Small S.O. 1,133-40 ft.; S.D. 4,-167 ft.

MOORE COUNTY

Delmar Oil Co.'s No. 1 Jones, 990 ft E, 330 ft. N. NW, Sec. 171, Blk. 3-T, T.&N.O. Sur. ..... Location.

Fritch O. & G. Co.'s No. 1 Lee Bivins, C N 40 ac., N 160 ac., Sec. 4, George Mahan Sur. ..... 2,000,000 ft. gas 1,550-65 ft.; T.D. 3,212 ft.; S.O. 3,188 ft.; shot 40 qts. from 3,182-3,202 ft.; no results; S.D.

Gulf Prod. Co.'s No. 1 Kilgore, C SW, Sec. 22, Blk. P.Mc., E.L.R.R. Sur. ..... Gas; S.D. 3,424 ft; estimated 15,-000,000 ft. 3,050-60 ft.

Red River Gas Co.'s No. 1 J. M. Shelton, 330 ft. each way from SE cor., Sec. 52, Blk. 3, G.&M. Sur. ..... S.D. 3,080 ft.

MOTLEY COUNTY

Explta. Co.'s No. 6 Matador, 330 ft. N line, 330 ft. E line, Sec. 132, Blk. M ..... S.D. 4,011 ft.

Matador Oil Corp.'s No. 1 Owens, C NE, Sec. 10, Blk. G, B.&B. Sur. ..... S.D. 580 ft.

POTTER COUNTY

Canadian River Gas Co.'s No. 1-N Masterson, 330 ft. E, 1,320 ft. S, Sec. 17, Blk. 3, G.&M R.R. Sur. ..... Drlg. 2,150 ft.

RANDALL COUNTY

W. A. Patterson s No. 1 Palo Duro, Sec. 60, Blk. K-14 S.D. 1,250 ft.

Texas Interstate P. L. Co.'s No. 1 Masterson, C, Sec. 37, Blk. B-10, E.L.R.R. Sur. ..... Location.

ROBERTS COUNTY

Big Bend Oil Co.'s No. 1 Ledrick, Sec. 7, Blk. A-5 ..... Shot 10 qts. 5,270-93 ft.; S.O. 5,-288 ft.; S.D. 5,992 ft.

WHEELER COUNTY

Dunaway Bros.' No. 1 Worley, 330 ft. S and W, NE cor. NW, Sec. 39, Blk. 24, H.&G.N.R.R. Sur. ..... T.D. 2,120 ft.; 5,000,000 ft. gas 2,025-35 ft.

Four Leaf Drlg. Co.'s No. 1 Jackson, 330 ft. S and W, NE, Sec. 11, Blk. 27, H.&G.N. Sur. ..... Running 8¼-in. csg.; T.D. 1,290 ft.

Johnson et al's No. 2 Hicks, 890 ft. W, 990 ft. S, Sec. 49, Blk. 17, H.&G.N. Sur. ..... Spudded and S.D.

Lone Star Gas Co.'s No. 1 Brown, C NW NE, Sec. 53, Blk. 23, H.&G.N.R.R. Sur. ..... Location.

Lone Star Gas Co.'s No. 2 Hicks (Martin), C NW NE, Sec. 52, Blk. 17, H.&G.N.R.R. Sur. ..... Location.

Lone Star Gas Co.'s No. 1 Nickell, C NW NW, Sec. 64, Blk. 17, H.&G.N.R.R. Sur. ..... Cellar.

Lone Star Gas Co.'s No. 1 Wofford, C SE SW, Sec. 68, Blk. 17, H.&T.N.R.R. Sur. ..... Drlg. 1,735 ft.

Lone Star Gas Co.'s No. 1 Ridinger, C NW NW, Sec. 65, Blk. 17, H.&G.N. Sur. ..... Rig on ground.

Murchison & Fain's No. 1 Parsons, 1,980 ft. W, 1,195 ft. N. Sec. 52, Blk. 23, H.&G.N. Sur. ..... Location.

Prince & Adams' No. 2 Burcham, C NE NE, Sec. 89, Blk. 17, H.&G.N.R.R. Sur. ..... Drlg. 1,630 ft.

Upham Gas Co.'s No. 1 Fee, 660 ft. S, 330 ft. W, W½ SW SE, Sec. 74, Blk. 17, H.&G.N. Sur. ..... Drlg. 1,320 ft.

Wischkamper et al's No. 2 Brown, C SE NE, Sec. 53, Blk. 23, H.&G.N.R.R. Sur. ..... S.D. 1,200 ft.

WILDCAT OPERATIONS IN WEST TEXAS

(Continued from Page 63)

CRANE COUNTY

Cranfill et al's No. 1 Tubb, 2,310 ft. from N and 330 ft. from E of Sec. 8, Blk. B-27, Public School Land ..... Top salt 505 ft.; drlg. 2,045 ft.

C. C. Duffey's No. 1 Cowden Bros., 1,280 ft. from W and 660 ft. from S of Sec. 31, Blk. 2, E.&T.C. Sur. ... Location.

Duffey et al's No. 3 Cowden Bros. et al, 2,232 ft. from W line and 200 ft. from S line, Sec. 18, Blk. X ..... Location.

Humble Oil & Ref. Co.'s No. 2-C University, 2,310 ft. N and 330 ft. W of SE cor., Sec. 40, Blk. 30, University Land ..... Shut down 2,935 ft.; top pay 2,872 ft.; swabbed 85 bbls. first 12 hrs. after 170-qt. shot.

CROCKETT COUNTY

California Co.'s No. 2 Shannon, Lease No. 3, 258 ft. N and 2,997 ft. E of Sec. 42, T.C.R.R. Sur. ..... Drlg. 2,300 ft.

Doleman & Moore's No. 1 Perner, 3,135 ft. from N and 1,485 ft. from E of Sec. 36, Blk. 2, I.&G.N. Sur. ..... Machine.

Lewis & Daniels' No. 1 Pecos River bed, 19 yds. S and 37° E of NW cor., Sec. 33, Blk. 1, I.&G.N. Sur. ..... Shut down 1,407 ft.

Magnolia Pet. Co.'s No. 1 Hoover, 2,310 ft. from N and 330 ft. from E of Sec. 12, Blk. 1, G.C.&S.F.R.R. Sur... Top salt 660 ft.; show gas 1,858-1,950 ft.; 1 gal. oil per hr. from 2,205-10 ft.; shut down 2,963 ft.

Trans-Texas Oil Co.'s No. 2 Shannon, 983 ft. from S and 1,873 ft. from E line of Sec. 42, T.C.R.R. Sur.... Top salt 1,235 ft.; drlg. 1,885 ft.

CULBERSON COUNTY

Grisham & Hunter Oil Corp.'s No. 1 Seay, 330 ft. from S and W of Sec. 16, Blk. 59, Twp. 7, T.&P.R.R. Sur.... Shut down 3,509 ft.

Grisham & Hunter Corp.'s No. 1 Garren, 2,310 ft. from S and 330 ft. from E of Sec. 18, Blk. 89, P.S.L. Sur. ... Shut down 1,670 ft.

Hickey & Stiver's No. 1 C. O. Finley, 600 ft. N and 1,980 ft. W, Sec. 20, Blk. 82 ..... Small show oil 1,331 ft.; shut down 2,895 ft.

Kornrumpf et al's No. 1 Garren, 330 ft. S and W, Sec. 15, Blk. 79, Public School Land ..... Spudded and shut down.

West Coast Oil & Exploration Co.'s No. 1 McGregor, C NW, Sec. 14, Blk. 81 ..... Slight show oil 740 ft.; shut down 875 ft.; may abandon.

Scott & Dittman's No. 1 Miller, 1,160 ft. N and 2,480 ft. E, Sec. 1, Blk. 97, Public School Land ..... Oil show 2,528 ft.; shut down 3,508 ft.

ECTOR COUNTY

Amerada and Skelly's No. 1-B University, 990 ft. from S and 440 ft. from E line, Sec. 2, Blk. 35, University Land ..... Fishing 668 ft.

Cosden Oil Co.'s No. 1 Kloh & Rumsey, 990 ft. S and 330 ft. E NW cor., Sec. 17, Blk. 44, Twp. 3s, T.&P. Sur. — Top pay 3,652 ft.; total depth 3,722 ft.; flowed 517 bbls. on 24th.

Cosden Oil Co.'s No. 2-A University, NE cor. S half NE, Sec. 1, Blk. 35, University Land — Shut down 3,408 ft.

Cosden Oil Co.'s No. 2 University-B, 2,310 ft. S and 440 ft. W of NE cor. of Sec. 2, Blk. 35, University Land — Drlg. 1,550 ft.

C. P. Davis et al's No. 1 Hendricks, C SW Sec. 46, Blk. 42, Twp. 2s, T.&P.R.R. Sur. — Drlg. 2,020 ft.

Gibson & Johnson's No. 1 Scharbauer, 990 ft. from N and E of Sec. 4, Blk. B-15, Public School Land — Drlg. 3,530 ft.

Gulf Prod. Co.'s No. 1 Kloh-G, 330 ft. N and 440 ft. E of SW cor., Sec. 5, Blk. 44, Twp. 3s, T.&P. Sur. — Cem. 6⅝-in. casing 3,225 ft.

Gulf Prod. Co.'s No. 2 State, 330 ft. S and 440 ft. W of NE cor. S 160 acres, Sec. 1, Blk. 35, University Land — Drlg. 2,355 ft.

Gulf Prod. Co.'s No. 1 State-A, 330 ft. S, 440 ft. W of NE cor. of N half of S half, Sec. 2, Blk. 35, University Land — Top pay 3,670 ft.; total depth 3,735 ft.; to plug back.

Gulf Prod. Co.'s No. 2 State-A, 330 ft. N and 440 ft. W of SE cor. N half S half, Sec. 2, Blk. 35, University — Cem. casing at 1,310 ft.

Humble et al's No. 4 Kloh-D, 322 ft. N and 440 ft. E of SW cor., Sec. 7, Blk. 44, Twp. 3s — Drlg. 3,750 ft.; top pay 3,658 ft.; making flows.

Humble Oil & Ref. Co.'s No. 5-D Kloh-Rumsey, 1,674 ft. S and 440 ft. E of NW cor., Sec. 7, Blk. 44, Twp. 3s, T.&P. Sur. — Drlg. 3,550 ft.

Humble Oil & Ref. Co.'s No. 6-D Kloh-Rumsey, 1,014 ft. S and 440 ft. E of NW cor., Sec. 7, Blk. 44, Twp. 3s, T.&P. Sur. — Drlg. 3,750 ft.; top pay 3,659 ft.; flowed 633 bbls. on 23d.

Humble Oil & Ref. Co.'s No. 7-D Kloh et al, 330 ft. from N and 440 ft. from W of Sec. 7, Twp. 3s, Blk. 44, T.&P. Sur. — Drlg. 3,505 ft.

Rumble Oil & Ref. Co.'s No. 8 Kloh-D, 986 ft. N and 440 ft. E of SW cor., Sec. 7, Twp. 3s, Blk. 44, T.&P. Sur. — Drlg. 425 ft.

Humble et al's No. 4 York, 323 ft. S and 440 ft. E of NW cor., Sec. 16, Blk. 44, Twp. 3s — Drlg. 3,415 ft.

Humble Oil & Ref. Co.'s No. 7 York, 1,650 ft. N and 440 ft. E of SW cor., Sec. 16, Blk. 44, Twp. 3s — Drlg. 635 ft.

Independent Oil & Gas Co.'s No. 1 Eidson, 1,250 ft. S and 2,144 ft. E of NW cor., Sec. 6, Blk. 44, Twp. 3s, T.&P. Sur. — Drlg. 3,240 ft.

H. F. Wurtz' No. 1 E. A. Ibbetson et al, 330 ft. from N and E lines of NW, Sec. 16, Blk. 46, Twp. 3s, G.M.M.Br.&A. Sur. — Spudded and shut down 30 ft.

T. P. Coal & Oil Co.'s No. 1 McKenzie, 1,650 ft. from S and 330 ft. from E of Sec. 28, Blk. 45, Twp. 2s, T.&P. Sur. — Drlg. 3,050 ft.

Transcontinental Oil Co.'s No. 1 University, 1,650 ft. from N and 440 ft. from E line of Sec. 3, Blk. 35, University Land — Drlg. 580 ft.

R. R. Penn et al's No. 1 Goodman et al, 2,640 ft. N and 330 ft. W of SE cor. Sec. 27, Blk. 44, T.&P.R.R. Sur. — Building derrick.

Simms Oil Co. et al's No. 1 University (was Landreth Prod. Corp.), 2,310 ft. N, 440 ft. W SE cor., Sec. 1, Blk. 35, University Land — Top pay 3,620 ft.; shut down 3,670 ft.; flowed 770 bbls. on 25th.

Shell Pet. Corp.'s No. 1 Jones, Sec. 6, Blk. 44, Twp. 3s, T.&P.R.R. Sur. — Drlg. 3,505 ft.

Skelly Oil Co. et al's No. 1 University-A, 990 ft. S and 440 ft. N of NE cor. Sec. 1, Blk. 35, University — Top pay 3,625 ft.; shut down 3,724 ft.; flowed 455 bbls. on 24th.

Skelly Oil Co.'s No. 2-A University, 330 ft. S and 440 ft. W of NE cor., Sec. 1, Blk. 35, University Land — Running 8¼-in. casing at 2,465 ft.

Skelly Oil Co. and Republic Prod. Co.'s No. 1 McKenzie, 990 ft. from S line and 330 ft. from E line of Sec. 28, Blk. 45, Twp. 2s, T.&P. Sur. — Derrick.

The Texas Company's No. 7 Connell, 2,310 ft. from S and 440 ft. from W, Sec. 1, Blk. B-16, Public School Land — Drlg. 1,310 ft.

EL PASO COUNTY

Lane-The Texas Company's No. 1 Malone, 2,140 ft. from SW and NW of Sec. 46, J. M. Day Sur. — Shut down 310 ft.

FISHER COUNTY

Cranfill & Reynolds' No. 1 Johnson, 440 ft. from N and 1,540 ft. from W of Sec. 3, Blk. R, Richardson Sur. — Drlg. 2,965 ft.

Cranfill & Reynolds' No. 2 Willingham, 330 ft. from N and E of NW, Sec. 199, B.B.B.&C.R.R. Sur. — Drlg. 1,630 ft.

Cranfill & Reynolds' No. 2 Barrett, 330 ft. from N and W of NE, Sec. 199, B.B.B.&C. Sur. — Location.

Cranfill & Reynolds' No. 1 Flannigan, 330 ft. from S and E, Sec. 200, B.B.B.&C. Sur. — Location.

Mid-West's No. 1 Decker, 330 ft. from S and W of W 80 ac. of N 160, Sec. 8, Richardson Sur. — Location.

Roeser & Pendleton's No. 1 Steele, 660 ft. from N and 440 ft. from W of N half of SW, Sec. 210, B.B.B.&C. Sur. — Location.

GAINES COUNTY

Humble Oil Ref. Co.'s No. 1 Carswell, 660 ft. S and E of NW cor. of Sec. 23, Blk. A-27, Public School Land — Drlg. 635 ft.

GARZA COUNTY

Pandem Oil Corp.'s No. 1 Justice, 330 ft. from S and W of Sec. 12, Blk. 6, H.&G.N. Sur. — Location.

GLASSCOCK COUNTY

California Co.'s No. 1 Baker, 2,310 ft. from S and 990 ft. from W, Sec. 23, Twp. 2s, Blk. 33, T.&P. Sur. — Top pay 2,238 ft.; increase 2,262 ft.; total depth 2,297 ft.; pumped 640 bbls. in 24 hrs., may deepen.

California Co.'s No. 1 Jones, 330 ft. S from N and E lines, Sec. 25, Blk. 33, Twp. 2s, T.&P. Sur. — Drlg. 1,480 ft.

Group No. 1 Oil Co. and Continental Oil Co.'s No. 1 Miller, 330 ft. S and 990 ft. E of NW cor. Sec. 162, Blk. 29, W.&N.W.R.R. Sur. — Show oil 1,400-02 ft.; shut down 2,421 ft.; cleaning out.

F. H. E. Oil Co.'s No. 1 Cox, 330 ft. from S and E of SW, Sec. 8, Blk. 33, Twp. 2s, T.&P. Sur. — Drlg. 3,172 ft.

Kirby Pet. Co. et al's No. 2 Phillips, 990 ft. S and 2,310 ft. E of NW cor., Sec. 23, Blk. 33, Twp. 2s, T.&P. R.R. Sur. — Drlg. 420 ft.

Kirby Pet. Co. et al's No. 3 Phillips, 1,650 ft. S and 2,310 ft. E of NW cor., Sec. 23, Blk. 33, Twp. 2s, T.&P.R.R. Sur. — Drlg. 990 ft.

Shell Pet. Corp.'s No. 1 Phillips, 1,650 ft. S and 2,310 ft. W of NE cor., Sec. 23, Blk. 33, Twp. 2s, T.&P.R.R. Sur. — Drlg. 1,710 ft.; show oil 1,374-1,414 ft.

Timberlake & Snyder's No. 1 Meek, 2,310 ft. W and 1,600 ft. N of SE cor., Sec. 7, Blk. 34, Twp. 3s, T.P. Sur. — Show oil 970 ft.; drlg. 2,770 ft.

World Oil Co.'s No. 3-C McDowell, 2,310 ft. from S and W of NE cor., Sec. 21, Blk. 34, Twp. 2s, T.&P. Sur. — Location.

World Oil Co.'s No. 1 Edwards, 330 ft. from S line and 2,310 ft. from W line of Sec. 14, Blk. 34, Twp. 2s, T.&P. Sur. — Location.

HOWARD COUNTY

Cosden Oil Co.'s No. 6 Roberts-A, 200 ft. N and E of SW cor., Sec. 129, Blk. 29, W.&N.W.R.R. Sur. — Sulphur water 1,433-46 ft.; shut down 1,456 ft.

McGinley-Sigler's No. 1 Hyman-C, 330 ft. N and 990 ft. W SE cor., Sec. 93, Blk. 29, W.&N.W.R.R. Sur. — Location.

Merriwether's No. 1 Smith, 150 ft. from S, 2,490 ft. from W, Sec. 45, Blk. 33 — Drlg. 2,460 ft.

Moody Oil Corp.'s No. 23-B Roberts, 990 ft. from N and W of Sec. 137, Blk. 29 — Set 10-in. casing; shut down 261 ft.

Sinclair O. & G. Co.'s No. 1 Montgomery et al, 2,310 ft. from N and W of Sec. 11, Blk. 30, Twp. 1s, T.&P. Sur. — Drlg. 500 ft.

HUDSPETH COUNTY

California Co.'s No. 1 University, 3,821 ft. N and 2,554 ft. E of SW cor., Sec. 19, Blk. E — Slight oil show 4,021-23 ft.; drlg. 4,376 ft.

Western States Oil Co.'s No. 1 Moore, C SE, Sec. 16, Blk. 71, Twp. 6, T.&P. Sur. — Shut down 2,760 ft.

Western States Oil Co.'s No. 1 Gardner & Moseley, NE NW, Sec. 12, Blk. 18 — Fishing 3,155 ft.

IRION COUNTY

Crawford Oil Co.'s No. 1 Williams, 450 ft. from N, 150 ft. from W, Subd. 8 — Shut down 1,105 ft.

Cromwell's No. 2 Nutt, 504 ft. from N and 1,162 ft. from W of Subd. 6, Gonzales County School Land — Underreaming 8¼-in. casing at 1,215 ft.

Glenn et al's No. 1 Tankersley, NW cor. SW, Sec. 4, G.C.&S.F.R.R. Sur. — Location.

Kingwood Oil Co. et al's No. 1 J. D. Suggs, SE NW SE, Sec. 19, Blk. 7, H.&T.C. Sur. — Show gas 7,656 ft.; encountered 2,400 ft.; sulphur water 7,818 ft.; plugged back to 6,700 ft.; C.O.

P. H. Williams' No. 1 Ash, C of Sec. 20, Washington County — Show oil 7,931 ft.; cleaning out 8,830 ft., black lime.

Straughan and Texannati Oil Co.'s No. 1 Nutt, 150 ft. N and E of NW NW, Blk. 6, Gonzales County School Land — Shut down 205 ft.

JONES COUNTY

Mid-Tex Oil Co.'s No. 1 King, 330 ft. E of river and 800 ft. S of N line, Subd. 1, Sec. 197, M. Bueno Sur. — Topped sand 1,980 ft.; total depth 1,965 ft.; trying to flow through tubing.

Shabean et al's No. 1 King — 800 ft. fluid in hole; shut down 2,204 ft.; top pay 2,061 ft.; cleaning out after shot.

KENT COUNTY

White & Smith's No. 1 Pursley estate, 1,320 ft. from E and 2,640 ft. from S of Sec. 8, Blk. H, H.&T.B. Sur. — Shut down 273 ft.

LAMB COUNTY

Graham Oil & Gas Co.'s No. 1 Ellwood, CWL, Sec. 9, Blk. T, T. A. Thompson Sur. — Shut down 4,428 ft.

LOVING COUNTY

California Co.'s No. 1 Allen, 330 ft. from SE and SW of Sec. 90, Blk. 1, W.&N.W. Sur. — Top salt 770 ft.; drlg. 3,615 ft.

California Co.'s No. 1 Reagan & McElvain, 330 ft. SW of NE line and 330 ft. SE of NW line, Sec. 84, Blk. 1, W.&N.W.R.R. Sur. — Top salt 771½ ft.; drlg. 3,035 ft.

Lockhart & Co.'s No. 3 Bowen & Wells, 330 ft. from NE and SE of Sec. 92, Blk. 1, W.&N.W. Sur. — Shut down 3,383 ft.

Hadlock et al's No. 2 Russell, 1,650 ft. SW of NE line, 2,310 ft. NW of SE line, Sec. 80, Blk. 1, W.&N.W. R. R. Sur. — Rigging up and shut down.

Lockhart & Co.'s No. 2 fee, 676 ft. S, 330 ft. W, Sec. 91, Blk. 1, W.&N.W. Sur. — Spudded 140 ft.; shut down.

Lockhart & Co.'s No. 3 Hubbard, 1,650 ft. from NE line, 330 ft. NW line of Sec. 83, Blk. 33, H.&T.C.R.R. Sur. — Location.

Lockhart & Co.'s No. 5 Hubbard, 1,650 ft. SW of NE line and 330 ft. SE of NW line Sec. 83, Blk. 33, H.&T.C. Sur. — Top pay 2,305-08 ft.; swabbed 33 bbls.; shut down 4,011 ft.

Lockhart's No. 1 Wheat & Ramsey, 440 ft. from NE and NW of Sec. 83, Blk. 1, W.&N.W. Sur. — Drlg. 2,410 ft.

LYNN COUNTY

Lubewell Oil Co.'s No. 1 May, 2,310 ft. S, 2,310 ft. W, Sec. 10, Blk. 7, E.L.R.R. Sur. — Shut down 190 ft. for casing.

George McCamey's No. 1 Edwards, 165 ft. N and E, Sec. 5, Blk. 2, L.S.&W. Sur. — Top salt 2,140 ft.; oil show 1,580-90 ft.; hole full sulphur water 4,730 ft.; set 6-in. casing 4,733 ft.; shut down 5,040 ft.

MENARD COUNTY

Cromwell & Duffey's No. 2 Winslow, 250 ft. S and E of NW cor. NE of NE, Sec. 36, J. H. Gibson Sur. — Shut down 3,202 ft.

Priest's No. 1 Sorrel, 1,000 ft. from E and 200 ft. from S cor., Sec. 132, E.L.R.R. Sur. — Shut down 1,585 ft.

MIDLAND COUNTY

Pure Oil Co.'s No. 1 Hutt, 2,310 ft. from N and 330 ft. from E of Sec. 14, Blk. 38, Twp. 4s, T.&P. Sur. — Hole junked; to skid rig.

MITCHELL COUNTY

Gant & Teas' No. 1 Handley, 330 ft. S and W parallel to section lines of NE cor. of SE, Sec. 12, Blk. 28, Twp. 1n, T.&P. Sur. — Location.

Magnolia Petroleum Co.'s No. 7 Mary Foster, 330 ft. from N and W line of Sec. 17, Blk. 29, Twp. 1s, T.&P.R.R. Sur. — Total depth 2,779 ft.; top pay 2,751 ft.; swabbed 67 bbls. in 18 hrs.

Morrison et al's No. 2 Morrison, 2,390 ft. from N and 660 ft. from E of Sec. 31, Blk. 28, Twp. 1n, T.&P. R.R. Sur. — Drlg. 2,830 ft.

PECOS COUNTY

Atlantic O. P. Co.'s No. 1 Shearer, 330 ft. from NW and SW, Sec. 107, Blk. 10, H.Y.N.R.R. Sur. — Show oil and gas 1,062 ft. and 1,170 ft.; top pay 1,438 ft.; plugged back 1,450 ft.; putting on pump.

Black et al's No. 1 Pecos Valley Oil Co., 1,520 ft. from SE and 1,120 ft. from SW of Sec. 34, Blk. 3, H.&T.C. R.R. Sur. — Shut down 1,400 ft.

California Co.'s No. 1 Jasper Co. Realty Co., 165 ft. from NE line and 159 ft. from SE line of California Co.'s 160 acres, Sec. 21, Blk. 10, H.&G.N.R.R. Sur. — Drlg. 1,220 ft.

Continental Oil Co.'s No. 1 Bennett, C S, Sec. 68, Blk. 10, H.&G.N.R.R. Sur. — Drlg. 1,680 ft.

Crosby Prod. & Ref. Co.'s No. 1 Cordova, 330 ft. from N and E of S 320 ac., Sec. 11, Blk. 11, H.&G.N. Sur. — Top salt 725 ft.; shut down 2,080 ft.

Cromwell et al's No. 1 University, 1,980 ft. from S and 2,310 ft. from E, Sec. 16, Blk. 16 — Drlg. 1,080 ft.

Fisher & Lowrie's No. 1 Webb, C, Sec. 3, Blk. 203, Tilman & Walters Sur. — Drlg. 265 ft.

Hayes et al's No. 1 Lea, C NW of NE, Sec. 9, Blk. 106, T. & St.L. Sur. — Location.

Humble Oil & Ref. Co.'s No. 1 Kokernot, 1,320 ft. from N line and 1,467 ft. from W line of Sec. 227, Blk. 10, G.H.&S.A. Sur. — Rigging up.

Hussman Oil Co.'s No. 1 Esters, 960 ft. from N and 300 ft. E, Sec. 83, Blk. OW, T.M.R.R. Sur. — Shut down 1,880 ft.

Independent Oil & Gas Co.'s No. 1 Jasper County School Land, 1,160 ft. from SE line, 160 ft. from NE line, Sec. 21, Blk. 10, H.&G.N.R.R. Sur. — Drlg. 1,360 ft.

Martin A. Meyer et al's (formerly Mauch & Kroger) No. 1 Holmes, S half SW, Sec. 5, Blk. 178, T.C. Sur. — Shut down 2,224 ft.

Messenger et al's No. 1 Byrne, 2,130 ft. from NW line, 1,830 ft. from SW line, Sec. 54, Blk. 10, H.&G.N.R.R. Sur. — Shut down 710 ft.

R. E. Moore's No. 1 Arnold, 1,320 ft. from S and 660 ft. from E lines of Sec. 18, Blk. 1, H.&T.C.R.R. Sur. — Show gas 1,780 ft.; show oil 1,589 ft.; shut down 1,925 ft.

J. R. Miller et al's No. 1 Bennett, 359 ft. W from CWL, Sec. 1, Blk. 119, G.C.&S.F. Sur. — Spudded and shut down.

J. D. O'Mara's No. 1 Bennett, Sec. 592, 1,460 ft. from S, 150 ft. from E, G.&C.S.F. Sur. — Shut down 1,080 ft.

J. D. O'Mara's No. 1 Streety, C of Sec. 1, W. P. Howard Sur. — Show oil 1,785 ft.; shut down 2,200 ft.

Peren Oil Co.'s No. 2 Eaton, C of E of W, Sec. 27, Blk. 3, H.&T.C. Sur. ..... Shut down 655 ft.
R. W. Porpus et al's No. 1 State Land, 330 ft. S and W lines of NE, Sec. 28, Blk. OW, T.C.R.R. Sur. ..... Rigging up machine.
M. M. Rowan's No. 1 University, NE, Sec. 25, Blk. 16.... Total depth 2,490 ft.; plugged back 1,815 ft.; machine moved off.

Phillips Pet. Corp.'s No. 3 Monroe, 3,860 ft. from N and 660 ft. from E, Sec. 39, Blk. 194, G.C.&S.F. ..... Cellar.
Phillips Pet. Corp.'s No. 1 Shearer, 330 ft. from NE and SE lines of S, Sec. 99, Blk. 10, H.&G.N.R.R. Sur.. Shut down 835 ft.
Reetor Oil Co.'s No. 1 Young, 330 ft. S and 1,650 ft. E of SW cor., Sec. 26, Blk. 9, H.&G.N. Sur., but in Sec. 4, Blk. 3, H.&T.C. Sur. ..... Drlg. 2,000 ft.; show oil 1,620 ft.

Southern Crude Oil Pur. Co.'s No. 1 Eaton, 330 ft. from SE line, 1,650 ft. from SW line of Sec. 35, Blk. 3, H.T.C.R.R. Sur. ..... Shut down 1,452 ft.
Shell Pet. Corp's No. 5 Smith-D, 990 ft. N and W of SE cor. of Sec. 24, Blk. 194, G.C.&S.F.R.R. Sur. .. Drlg. 1,695 ft.
Shell Pet. Corp.'s No. 1 University-E, 330 ft. from S and W lines of NE, Sec. 31, Blk. 16, University Land .... Shut down 1,553 ft.; top pay 1,553 ft.; now flowing 35 bbls. oil, 24 per cent water per day.

Sides & Cloyd's No. 2 Blackstone & Slaughter, C NW of Sec. 34, Blk. A-2, T.&C.R.R. Sur. ..... Shut down 1,340 ft.
The Texas Company's No. 1 Wright, 660 ft. S and E of NW cor., Sec. 9, Blk. 131, T.&S.T.L. Sur. ..... Drlg. 1,690 ft.
Transcontinental Oil Co.'s No. 1 University, 1,980 ft. N and E of SW cor., Sec. 18, Blk. 18, University Land.. Total depth 4,910 ft.
Transcontinental Oil Co. et al's No. 2 Sellman, 990 ft. from N and 2,310 ft. from E of Sec. 8, Blk. Z, T.C. Sur. ..... Shut down 2,075 ft.
Transcontinental Oil Co. et al's No. 3 Sellman, 330 ft. from S and E, Sec. 7, Blk. Z, T.C. Ry. Sur. ..... Shut down 565 ft.
Transcontinental Oil Co. et al's No. 1-A Sellman, 340 ft. from N and 330 ft. from E of SE, Sec. 12, Blk. 194, G.C.&S.F. Sur. ..... Drlg. 800 ft.
Transcontinental Oil Co. et al's No. 1 Tippett, 380 ft. from S and 660 ft. from E, Sec. 8, Blk. 194, G.C. &S.F. Sur. ..... Shut down 895 ft.
Trees Oil Co.'s No. 3 Trees, 330 ft. from S and W of Sec. 90, Blk. T, H.&G.N. Sur. ..... Show oil and gas 1,875-81 ft.; drlg. 2,025 ft.

W. F. Walsh et al's No. 1 Scharbaur Cattle Co., 330 ft. S and 990 ft. E from C, Sec. 16, Blk. 136, T.&St. R.R. Sur. ..... Drlg. 1,105 ft.
Walsh et al's No. 1 Shearer, 330 ft. from NE and NW of E, Sec. 89, Blk. 10, H.&G.N.R.R. Sur. ..... Shut down for machine.

PRESIDIO COUNTY

L. C. Brite's No. 4 Brite, 271 ft. from N and 1,188 ft. from E lines of Sec. 245, Blk. 4 ..... Shut down 570 ft.

REAGAN COUNTY

Big Lake Oil Co.'s No. 1-C University, 2,598 ft. S and 250 ft. W of NE cor., Sec. 1, Blk. 2, University Land.. Top pay 2,903 ft.; top pay 6,897 ft.; drlg. 8,608 ft.

Hagan & Emeh and Amerada's No. 1 Sawyer Cattle Co., 330 ft. from S and 990 ft. from E lines of Sec. 125, Blk. 1, T.&P. Sur. ..... Drlg. 2,170 ft.
Big Lake Oil Co.'s No. 4-C University, 1,120 ft. from N and 1,096 ft. from E of Sec. 1, Blk. 2 ..... Showing oil and gas at 8,220 ft.; total depth 8,220 ft.; flowed 122 bbls. oil, 5,197,000 ft. gas per day.

Texon Oil & Land Co.'s No. 2-B University, 4,655 ft. from S, 250 ft. from W, Sec. 36, Blk. 9 ..... Top pay 8,131 ft.; total depth 8,131 ft.; spraying 150 bbls. daily, 16,000,000 ft. gas.

Texon Oil & Land Co.'s No. 3-B University, 2,240 ft. from S, 920 ft. from W, Sec. 36, Blk. 9 ..... Shut down 5,812 ft.

REEVES COUNTY

Exploration Co.'s No. 1 A. A. Kinney, 1,500 ft. W of NE cor., Sec. 26, Blk. C-18, Public School Land, elev. 2,847 ft. ..... Shut down 2,900 ft.
H. T. Hansford's No. 1 Williams, 150 ft. from S and W, Sec. 17, Blk. 6, H.&G.N. Sur. ..... Shut down 380 ft.
Black & Fink's No. 1 Brooks, 1,980 ft. N and 660 ft. W, Sec. 16, Blk. 59 ..... Shut down 1,860 ft.; show oil 1,820 ft.; cleaning out after two shots.

Southern Crude Oil Pur. Co.'s No. 1 Kloh-Rumsey, 2,310 ft. N and W SE cor., Sec. 23, Blk. 51 ..... Show oil 3,410-20 ft.; shut down 3,575 ft.

David R. Thompson's No. 1 A. A. Eddins, Sec. 9, Blk. C-1 ..... Shut down 5,658 ft.

RUNNELS COUNTY

Gibson & Johnson's No. 1 Johnson, 2,310 ft. N and 1,650 ft. W of SE cor., Sec. 150, E.T.R.R. Sur. ..... Total depth 2,015 ft.; underreaming 8¼-in. casing at 1,845 ft.

Gibson & Johnson's No. 2 Serratt, 2,310 ft. from S and 1,650 ft. from E of Sec. 150, E.T.R.R. Sur. ..... Derrick.
George W. Boyce's No. 1 Lang, 2,310 ft. N, 6,900 ft. E, Sec. 262 ..... Show oil 2,028 ft.; shut down 2,504 ft.

SCHLEICHER COUNTY

Delmar Oil Co.'s No. 1 O'Harrow, C of NW, Sec. 56, Blk. 1, G.H.&S.A.R.R. Sur. ..... Drlg. 3,035 ft.
Interstate's No. 1 Whitten, 1,320 ft. from N and W, Sec. 35, Blk. LL, T.C.R.R. Sur. ..... Total depth 6,146 ft.
Teas & Gant's No. 1 Allison, 1,320 ft. N and E of SW cor. of Sec. 37, Blk. K, G.H.&S.A.R.R. Sur. ..... Total depth 345 ft.
George Wilson's No. 1 Page, Sec. 40, Blk. L, 1,290 ft. from N, 1,470 ft. from W, G.H.&S.A.R.R. Sur. ..... Shut down 4,710 ft.

SCURRY COUNTY

Byrd & Harmon's No. 1 Murphy, Jr., 330 ft. from N and E of Sec. 114, Blk. 97, H.&T.C. Sur. ..... Show oil 1,750 ft.; drlg. 2,160 ft.; top pay 1,750 ft.; estimated 10 bbls. on pump.

Camp Spring Oil & Ref. Co.'s No. 3 Guinn, 1,300 ft. from S, 300 ft. from E, Sec. 12, Blk. 3, H.&T.C.R. R. sur. ..... Total depth 4,140 ft.
I. B. Mimms et al's No. 1 J. J. Koonsman, Sec. 216, Blk. 2, H.&T.C.R.R. Sur. ..... Spudded and shut down 300 ft.
G. E. Dickman and R. B. Pender et al's No. 1 F. C. Davis, 1,000 ft. N and 1,770 ft. W of SE cor. of Sec. 275, Blk. 2, H.&T.C. Sur. ..... Total depth 4,335 ft.
Magnolia Pet. Co.'s No. 1 More, 1,320 ft. from S and W, Sec. 379, Blk. 97 ..... Top salt 750 ft.; encountered 500,000 ft. gas 1,510 ft.; oil show 2,215 ft.; shut down 4,650 ft.

Transcontinental Oil Co.'s No. 1 Peckham, 330 ft. from S and W of R. N. Miller Sur. ..... Underreaming casing; total depth 535 ft.

SUTTON COUNTY

Independent Oil & Gas Co.'s No. 1 Wilson, Sec. 30, Blk. A, 1,650 ft. from N, 2,310 ft. from W ..... Location.

TAYLOR COUNTY

Condor Pet. Co.'s No. 1 Stoker, C of NW, Sec. 220, Blk. 64, H.T.C.R.R. Sur. ..... Total depth 2,580 ft.; rigging up on new rig.

A. H. Gibson et al's No. 1 Cody, 888 ft. N and 160 ft. W of SE cor., Lot 2, Sec. 18, Guadalupe County School Land ..... Shut down 2,365 ft.; top pay 2,370 ft.; 1,200 ft. oil in hole.

Gibson & Johnson's No. 1 Bingham, 330 ft. N and E of SW cor. their 270.8-ac. tract, Sec. 31, Guadalupe County School Land ..... Drlg. 1,950 ft.
John B. Jameson's No. 1 Webb, 1,170 ft. S and W of NE cor., Sec. 46, Lunatic Asylum Land ..... Show oil 4,917 ft.; drlg. 5,841 ft.
Hucony Oil Co. et al's No. 1 Richie, C SE Sec. 10, Blk. A, S.P.R.R. Sur. ..... Spudding.

Mid-Continent Pet. Corp.'s No. 1 Lindsey, 239 ft. N and 219 ft. E of SW cor., Subd. 22, Guadalupe County School Land ..... Drlg. 1,900 ft.

TERRELL COUNTY

Big Bend Oil Co.'s No. 1 Bassett, C NW, Sec. 155, Blk. D, M.-K.-T.R.R. Sur. ..... Drlg. 1,840 ft. in blue black shale.

Keck Pecos Trust Co.'s No. 1 Hamilton, C Sec. 6, Georgetown Ry. Sur. ..... Shut down 3,150 ft.
Miller Bros.' No. 1 Allison & Burke, C NW cor., Sec. 10, Blk. 176, T.&P. Sur. ..... Shut down 120 ft.
Mrs. J. B. McPhees No. 1 Sam Belt, C, Sec. 78, Blk. D-7, E.L.&R.R. Sur. ..... Shut down 880 ft.; moved off machine.

Transcontinental Oil Co.'s No. 1 Goode, 2,152 ft. from E and 330 ft. from S, Sec. 26, Blk. 161, G.C.&S.F.R.R. Sur. ..... Shut down 3,030 ft.
Woodley & Jones' No. 1 Pankenham, C SE NW, Sec. 43, Blk. B-2, C.C.S.D.&N.G.R.R. Sur. ..... Shut down 640 ft.

TERRY COUNTY

Atlantic et al's No. 1 Carlisle, 990 ft. from S and E of Sec. 58, Blk. E, E.L.&R.R. Sur. ..... Shut down 3,322 ft.

TOM GREEN COUNTY

Cosden Oil Co.'s No. 1 William Anson, 2,310 ft. S, 330 ft. W of NE cor., Sec. 20, Blk. 24, H.T.C.R.R. Sur. ..... Spudded.
Cosden Oil Co.'s No. 1 Johnson, 150 ft. N and 1,050 ft. W of SE cor. of Joshua Grant Sur. ..... Shut down 425 ft.
Fitzgerald & Taliaferro's No. 1 Bennett, C SW, Sec. 1,628, E. H. Ringer Sur. ..... Plugged back to 2,405 ft. to straighten hole; shut down 2,417 ft.

Ellis et al's No. 2 Lewis, 450 ft. S and E of SE cor. of Joseph Webb Sur. but in Albert Black Sur. No. 75 .. Drlg. 350 ft.
Phillips Pet. Corp.'s No. 1 Gulden, 1,250 ft. from N and 1,583 ft. W of Sec. 77, James Webb Sur. ..... Show oil and hole full water at 140 ft.; mudding 980 ft.

E. W. Wiley et al's No. 1 Maier, 200 ft. from E, 110 ft. from N, Sec. 6, Blind Asylum Land ..... Show oil 418-20 ft.; total depth 620 ft.

UPTON COUNTY

Cordova Union Land Co.'s No. 1 fee, 330 ft. from S and E line of Sec. 1, Blk. 1, M.-K.-T.R.R. Sur. ..... Location.
Eppenauer Drlg. Co.'s No. 1 Chaney, 2,310 ft. from N and 330 ft. from W of Sec. 18, Blk. 3, M.-K.-T. Sur.. Drlg. 2,275 ft.
Gulf Prod. Co.'s No. 3-B Hughes, 160 ft. N and 161 ft. W of most southerly SE cor. of their 200-ac. lease "B" out of Wm. Teer Sur. ..... Rig.
Pure Oil Co.'s No. 3 Hughes, 150 ft. S and 767 ft. E of NW of their 300 ac., Sec. 4, Wm. Teer Sur. .... Partly rigged up; shut down.
T. P. Coal & Oil Co.'s No. 1 Belcher, 1,320 ft. from N and 2,310 ft. from W line, Sec. 10, Blk. 4½, G.C.& S.F.R.R. Sur. ..... Drlg. 3,785 ft.

VAL VERDE COUNTY

A. Bluhm's No. 1 Yoast, 1,760 ft. N, 600 ft. W of SE cor., Sec. 31, Blk. 3, I.&G.N. Sur. ..... Machine on ground.
Independent Operators' No. 1 Whithead, SE SE, Sec. 30, Blk. 4, I.&G.N. Sur., elev. 1,175 ft. ..... Shut down 4,850 ft.
O. O. Owen's No. 1 Mills, Sec. 128, Blk. 1, I.&G.N. Sur., elev. 2,130 ft. ..... Gas sand 2,491-2,520 ft.; tested 125-700 ft. gas; drlg. by tools 5,757 ft.

Phantom Oil Co.'s No. 1 Ingram, 175 ft. W of E line and 300 ft. N of S line, Sec. 33, Blk. D-8, E.L.&R.R. Sur.. Show oil 1,525 ft.; drlg. 2,970 ft.
Valvert Oil Corp.'s No. 1 Bassett, C NE, Sec. 47, Blk. Y.. Shut down 4,009 ft.

WARD COUNTY

Anderson et al's No. 1 Boogher et al, 3,364 from NE and 2,497 ft. from SE of Sec. 11, Blk. 5, H.&T.C. Sur.. Running 8¼-in. casing 875 ft.; top salt 825 ft.

Atlantic and Dorr's No. 1 Costley, 1,722 ft. SE of NW line and 990 SW of NE line, J. W. Howe Sur. No. 2 ..... Top pay 2,612 ft.; making 1,000,000 ft. gas; hole full of sulphur water 2,615-23 ft.; total depth 2,648 ft.

Atlantic and Delmar's No. 7 Hayzlett, 1,650 ft. from NE and NW of Sec. 17, Blk. 5 ..... Location.
Dearborn et al's No. 1 Boogher, 1,375 ft. NE and 785 ft. SE of N cor., Sec. 7, Blk. 32, but in Sec. 11, Blk. 5, H.&T.C.R.R. Sur. ..... Drlg. 865 ft.; top salt 846 ft.
Gulf Prod. Co.'s No. 3 Wristen Bros., 220 ft. NE of SW and 220 ft. SE of NW, Sec. 18, Blk. 5, H.&T.C. Sur.. Show gas 1,960-70 ft.; filling up with sulphur water 2,520-27 ft.; salt water 2,545 ft.; plugged back to 2,477 ft.

R. F. Owens' No. 1 Johnson, 100 ft. from NE and 1,100 ft. from SE of Sec. 8, Blk. 33, H.&T.C.R.R. Sur. ..... Shut down 380 ft.
Tex-Oil Prod. Co.'s No. 1 Redman, 1,980 ft. NE of SW line and 1,980 ft. SE of NW line, Sec. 152, Blk. 34, H.&T.C.R.R. Sur. ..... Show gas 2,806-09 ft.; drlg. 3,850 ft.
Richardson et al's No. 1 O'Brien et al, 332 ft. from N and 360 ft. from W, Sec. 5, Blk. F, G.M.M.B.&A. Sur. Show oil 2,555-62 ft.; show gas 2,573 ft.; increase in oil and gas 2,585-98 ft., 2,615-31 ft., 2,666-70 ft.; total depth 2,686 ft.; flowing average 180 bbls. per day.

Richardson et al's No. 2 O'Brien 322 ft. from N and 1,020 ft. from W of Sec. 5, Blk. F, G.M.M.B.&A. Sur. Spudded.
Shell Pet Corp.'s No. 1 Owens, located NE cor. of Sec. 16, Blk. 15, H.&T.C.R.R. Sur. ..... Top pay 2,886-93 ft.; increase at 2,969 ft. and 3,023 ft.; increase in oil 3,022-32 ft.; plugged back to 3,860 ft.; testing shutoff

Shipley et al's No. 4 Hayzlett, 2,050 ft. NW of SE and 2,420 ft. NE of SW line of Sec. 17, Blk. 5, H.&T.C. R.R. Sur. ..... Drlg. 2,978 ft.
Shipley et al's No. 5 Hayzlett, assume common line Secs. 16 and 17 is N and S. 220 ft. S and 1,910 ft. W. Sec. 17, Blk. 5 ..... Standard rig.
Shipley et al's No. 1 Monroe, 330 ft. SE SW, Sec. 3, Blk 1 ..... Shut down 385 ft.

J. E. Smith's No. 1 Clement, 152 ft. SW of NE line and 153 ft. SE of NW line, Lot 7, Sec. 7, Blk. 32, H.&T.C.R.R. Sur. ..... Drlg. 725 ft.
Sturm & Paine's No. 1 Cummins, 748 ft. from NE and 155 ft. from NW of Sec. 7, Blk. 32, H.&T.C.R.R. Sur.. Shut down 2,350 ft.; show oil and gas 2,170 ft.; made 70-bbl. head; not flowing.

Sun Oil Co.'s No. 1 Sealy, 330 ft. from N and E of Sec. 88, Blk. F, G.M.M.B.&A. Sur. ..... Drlg. 2,563 ft.

WINKLER COUNTY

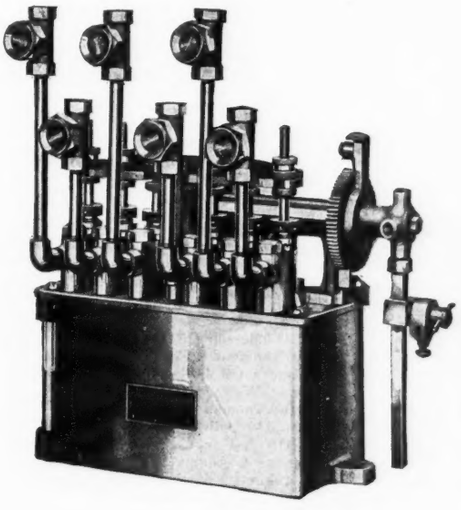
A. W. Phillips' No. 2 Brown et al, 2,000 ft. S and W of NE, Sec. 4, Blk. B-5, Public School Land ..... Top salt 1,300 ft.; shut down 2,832 ft.; show oil 2,775-85 ft.
Humble Oil & Ref. Co.'s No. 3 Wahon-B, 2,310 ft. S and W of NE cor., Sec. 47, Blk. 26, School Land .... Show oil 2,631-44 ft.; show oil 2,725 ft.; shut down 3,005 ft.; cleaning out to shoot.

Liner Drlg. Co.'s No. 1 Campbell, 330 ft. from N and E cor., Sec. 2, Blk. B-5 ..... Top brown lime 2,510 ft.; shut down 3,660 ft.

Shell and The Texas Company's No. 1-B Cowden, 660 ft. from S and W of Sec. 39, Blk. B-5, Public School Land ..... First gas 2,290 ft.; increase 2,580 ft.; total 3,500,000 ft. gas (estimated); fishing 2,738 ft.

Shell et al's No. 8 Scarborough, 1,020 ft. from N and 1,650 ft. from E of Sec. 2, Blk. 77, Public School Land .. .. Drlg. 1,750 ft.

Bearings Perfect to begin with ~ ~ *Deserve Perfect Lubrication*



Only positive lubrication will eliminate friction and promote smooth operation. Use Hills-McCanna Force Feed Lubricators and actually see the oil forced to the bearing at regular intervals.

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Visible evidence that clean, fresh oil reaches the bearing—Pumps against pressure—Oil protected from dirt, steam or air until it reaches the bearing—Saves oil because only the predetermined amount is delivered to the bearing—Positive regularity, continues to force oil to the bearings.

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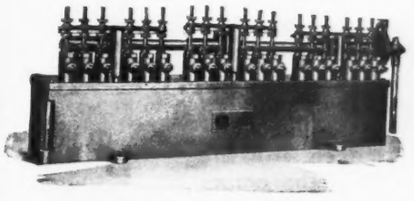

Eighteen feed unit for oil engine lubrication and for centralized lubrication of scattered auxiliaries. Other sizes to 60 feeds.

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HILLS-McCANNA FORCE FEED *Lubricators*

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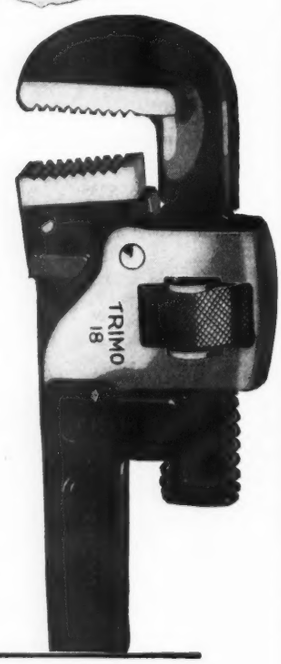
One Track Minds? Well, Maybe



MAYBE it's stubbornness, maybe its just that they know a good thing when they've found it. The fact is that most of the oil workers stick to the TRIMO pipe wrench and don't want any other.

And after all why shouldn't they be the best judges in the world? Nobody else gives a pipe wrench harder, steadier service. Nobody else has greater need for the strength and safety that comes from TRIMO's drop forged handle and sure-fire grip.

TRIMO
Pipe Wrench

Handle *Drop Forged, Not Cast*

TRIMO

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KENTUCKY-TENNESSEE

(Continued from Page 60)

well is 800 feet from the south line and 150 feet from the west line of the lease.

Wittmer Oil & Gas Co.'s No. 5 J. B. Crosby, in the Niagara Pool, in Henderson County, pumped 8 bbls. P. E. Tichenour's No. 1 Lee Bushy, same field, reported a duster. Greenville Oil Syndicate's No. 1 on the Arch Parker lease, in the Greenville Field of Muhlenberg County, is a large gas well at 1,663 feet.

Henderson County

One of the most active spots in drilling operations is in Henderson County where wells are not as prolific as those in the Stray sands of Ohio County, but good average producers, some starting around 100 bbls. initial and from that down to 10 bbls., most of them running around 30 to 50 bbls. initial, and at comparatively shallow depths, ranging from 650 to 800 feet. There is more activity at this time in this county than at any previous time, as the pipe line was a big relief to well owners.

It looks very much as though the field would run southward from the Niagara Pool toward Sebree, in Webster County, near the town of Robard, where a wildcat has just been drilled in by E. W. Wilson on the Charles Hester farm, showing for a nice well from 768-802 feet, and opening up an entirely new area for development. The new sand is called the Caseyville formation and something like 100 feet deeper than the Niagara formation. This new find is bound to bring about greater activity and many new wells are being started. Among some of the new wells starting are: Bastrus & Esslinger's second test on the Eakins, about 2 miles west of Robard; Miller & Damron's No. 1 W. C. Cooper farm; Esslinger Oil Co.'s No. 1 H. N. Griffin, 3 miles north of Niagara; H. N. Arnold's No. 1 Nora Crowder, 1½ miles south of Niagara; Johnson Oil & Refining Co.'s No. 1 Kerr; Albert Ewing's No. 1 Floyd Crafton; Iley Browning's No. 1 Ivo Griffin; Lowman & Daley's No. 2 Charles Golday, 1½ miles northwest of Niagara; Jerry Oil & Gas Co.'s No. 3 Basil Griffin; Wittmer Oil & Gas Co.'s Nos. 4 and 5 John B. Crosby; Henderson Oil Syndicate's No. 2 Fryer; Ranger Oil Co.'s No. 4 Marion Gish; Niagara Oil & Gas Co.'s No. 3 R. C. Duncan; Welfare Oil Co.'s No. 2 Arch Hatchett; Thomas Wittmer's No. 4 C. M. Gish, 1½ miles west of Niagara; Niagara Oil & Gas Co.'s No. 4 G. P. Jeter; Brenner & Adams' No. 1 Judson Williams; unknown parties' No. 1 Warren W. Wilson; K. M. Dole and others' No. 1 Joe Walden and No. 1 Agnew farms; and unknown parties' No. 1 Smith farm, south of Anthoston.

Active Operators

The Owensboro Messenger-Inquirer of Owensboro says: "A partial list of the active operators who maintain headquarters at Owensboro include H. C. Smith Drilling Co., Imperial Oil & Gas Products Co., McClintock & Co., Benedum & Trees, Wittmer Oil & Gas Co., Paul F. Dalhgren, Combs-McMahan Oil Co., Jetsan Oil Co., Daugherty & Heck, Pampas Oil & Gas Co., George Engle, Evans & Garrison, Missouri-Kansas Pipe Line Co., Rowe & Randall, Cumberland Petroleum Co., Kemrow Co., Petroleum Exploration Co., The Petroleum Co., Rex Oil Co., Fagin & Barnett, Pyramid Oil & Gas Co., Hupp & Duff, Mecca Oil Co., Buckerner-LaRue, Trognite Oil Co., Miller & Damron, Wah-Shah-She Oil Co., C. E. Daugherty & Co., Leeper Oil Co., Ohio Oil Co., Wood Oil Co., James C. Ellis, L. C. Young, Young & Goldberg, Three Sands Oil Co., Carpenter & Cockrell (3 C's), Lowman & Daily, Lucien Drury, White Plains Oil Co., Joseph Mayers, Chester Oil Co. (Chicago Petroleum Syndicate), D. T. Bolling, Vickers & White, S. H. Russell & Co., Weir & Stewart, C. R. Dulin, Ewing, Rowe & Sirman, Eastern Gulf Oil Co., Huff & Calderwood, Almstead Oil & Gas Co., Pops Oil Co., Hunt & Leach, George Randolph, H. C. Smith & Co., Brewer & Thresher, Wade & Moore, Lee Clough, New Domain Oil & Gas Co., J. F. Harris, Standard Oil Co. of Kentucky, Central Petroleum Co., Raydure, Richenbrode & Scott, E. T. Murray, Shell Petroleum Corp., Maple & Lyle, Lewis S. Robbins, Harry Ogle & Co., Pratt Brothers, Richard Veach, Young, Scott & Brandt, Allied Oil Corp., Lowman-Daley Oil Co., Red Bank Gas Corp., E. M. Treat Co., Penn-Indiana Oil & Gas Co., Duncan, Raydure & Battan, Superior Oil Corp., Kanawha Oil Co., Fred Weir & Co., Ray Young, Charles W. Stansbury & Co., Root & Mildren, B. B. Rhodes and Bert Thompson, Spice Dome Oil & Gas Development Corp., L. A. Shearer & Co., Joe Hare, Louisville Gas & Electric Co., Johnston & Young, Mecca Oil Co., S. R. Berry & Co., C. A. Daily, Frank B. Russel & Co.

With only a few exceptions these operators have production already developed in this field. All are actively engaged in drilling activities with one or more machines at work. While there are a few new concerns and individuals in the compilation, the greater percentage is well known to the trade.

Field Pickups

The Ohio Oil Co. is drilling on the Ransom Lee farm, near the hamlet of Depoy, in Muhlenberg County, and at the last report was down close to 800 feet. This is deep territory as production so far in the county has been found in what is called the McCloskey sand. In the same county, in the Greenville Field, Ellis & Young are drilling a deep test on the Rice Brothers lease, and are down close around 2,900 feet. The well has just passed through a very hard formation where only a few feet could be drilled in a day, but has entered softer drilling and more progress will be made. The well on the Kennedy-Eaves tract, close to the big well on the Bradshere farm, is down slightly over 500 feet.

Stinson Brothers are drilling on the Richardson farm, to the northeast of the Salmon Pool, in Daviess County, and Ira Huff and Stinson Brothers are drilling on the Freeman Sparks, in the Buford Pool, in western Ohio County, near the Daviess County line.

In the Haynesville area of Ohio County, Swarthout, Rhodes and others are drilling on the Ada Brooks farm, and the Cumberland Petroleum Co. is drilling on the David Brooks, same area.

Petroleum Exploration Co. is drilling No. 6 on the J. M. Clark farm, in the Utica Field, of Daviess County. Dug Bolling is drilling on the E. Hines, near Maxwell, same county, and Caudill Brothers are working on the John Ditto farm, near the same village.

Yewell, Hildebrand and others are drilling on tne Merton, in McLean County. Snowden-McSweeney Co. is drilling on the Leachman farm, same county. Cameron, Thompson and others are drilling on the Edward Summers farm, and Cameron and others are drilling No. 3 on the G. B. McManama farm on Gridstone Hill. Murray, Bolling and Calderwood are drilling on the M. Whittaker farm, 1,500 feet west of the Cameron well on the McManama farm.

Word comes from Richmond, the county seat of Madison County, Kentucky, that Wade H. Harley and others of Lexington drilled a test on the Samuel Lackey farm, 2 miles south of Kingston and southeast of Richmond, that went to a depth of 1,516 feet, where it was shot with 200 quarts and brought forth salt water and some oil, but whether it will prove a commercial producer is not yet known. Madison County is to the west of Estill County, where thousands of shallow wells were drilled some years ago.

DRILLER DIES AT SEA

CHATHAM, Ontario, Apr. 26.—R. E. McCort, driller, of Petrolia, Ontario, died recently on a passenger boat between British Guiana and the British West Indies. Mr. McCort had been drilling in British Guiana for several months and was returning home owing to illness. He was prominent among Canadian drillers in foreign fields, having drilled in Burmah, Sumatra, Borneo, Venezuela and Trinidad.

GULF COAST FIELDS AND WILDCATS

(Continued from Page 48)

T. P. Lee's No. 1 Wheeler & Pickens, east ..... Comp. flowing 75 bbls. oil 4,183 ft.
Lee & Wilson's No. 1 Bender, west ..... Drlg. heaving shale 4,004 ft.
Rio Brave Oil Co.'s No. 1 fee, west ..... Drlg. sand 4,219 ft.
Sun Oil Co.'s No. 4 Bender, west ..... Drlg. shale 5,331 ft.
Sun Oil Co.'s No. 5 Bender, west ..... Location.
Sun Oil Co.'s No. 48 River, north ..... Drlg. gumbo 1,846 ft.
The Texas Company's No. 24 House, north ..... Tested salt water 3,968 ft.; sidetracking 2,850 ft.
The Texas Company's No. 271 Landslide ..... Comp. flowing 750 bbls. oil 4,868 ft.
The Texas Company's No. 42 Stevenson, south ..... Drlg. sticky shale 2,838 ft.
The Texas Company's No. 22 Wheeler & Pickins, northeast ..... Rig.
The Texas Company's No. 1 Texas Pipe Line Co., west ..... Rig.
The Texas Company's No. 14 Koehler (workover) ..... Drlg. sticky shale showing oil 3,575 ft.
Trapshooter Riley Oil Co.'s No. 1 Ashton, west ..... Location.

BLUE RIDGE—FORT BEND COUNTY

Sinclair Oil & Gas Co.'s No. 1 Blakely ..... Drlg. sandy shale 4,944 ft.

PIERCE JUNCTION—HARRIS COUNTY

Continental Oil Co.s No. 2 Prudential (workover) ..... Fishing 4,322 ft.
Gulf Production Co.'s No. 32 Taylor ..... Started drilling.
Navarro Oil Co. and Texas Exp. Co.'s No. 10 Dooley (workover) ..... Blew out and caught fire; well killed after derrick wrecked; depth 3,915 ft.
Pure Oil Co.'s No. 2 Herman (workover) ..... Flowing by heads 5 bbls. oil each 4,765 ft.
Rio Brave Oil Co.'s No. 12-A Settegast (workover) ..... Drlg. gumbo and lime 4,694 ft.
Rio Brave Oil Co.'s No. 18-A Settegast, west ..... Rig.
Rio Brave Oil Co.'s No. 19-A Settegast ..... Location.
Saxet Oil Co.'s No. 2 Herman (workover) ..... No report.

LIBERTY—LIBERTY COUNTY

Empire Gas & Fuel Co.'s No. 12 O'Brien ..... Drlg. shale 996 ft.
The Texas Company's No. 6 Green, northwest ..... Abandoned in salt 3,128 ft.

HULL—LIBERTY COUNTY

The Texas Company's No. 1 Barrow fee ..... Drlg. 3,388 ft.
The Texas Company's No. 3 Hannah-Vacuum ..... T. D. 5,067 ft.; preparing to sidetrack stuck drill stem.

BIG CREEK—FORT BEND COUNTY

Gulf Production Co.'s No. 21 Davis (workover) ..... Comp. flowing 1,350 bbls. oil 3,599 ft.
Gulf Production Co.'s No. 58 Davis ..... Drlg. 500 ft.
The Texas Company's No. 2 Fee (workover) ..... Rigging up to deepen, 3,800 ft.

LOST LAKE—CHAMBERS COUNTY

Pure Oil Co.'s No. 10 Mayes ..... Comp. pumping 60 bbls. oil 2,841 ft.
Pure Oil Co.'s No. 11 Mayes ..... Drlg. gumbo 1,420 ft.
Pure Oil Co.'s No. 4 Lost Lake ..... Abandoned 4,479 ft.

NASH—BRAZORIA COUNTY

Rycade Oil Corp.'s No. 15 Wisdom (workover) ..... Pulling screen to deepen 3,747 ft.

SOUR LAKE—HARDIN COUNTY

Austin & Fenell's No. 1 Watson ..... Shut down 2,394 ft.
Minor Oil Co.'s No. 87 Fee ..... Comp. flowing 10 bbls. oil 778 ft.

SARATOGA—HARDIN COUNTY

Rio Bravo Oil Co.'s No. 80-C Cotton ..... Standing 245 ft.
Rio Bravo Oil Co.'s No. 82-A Cotton ..... Standing 555 ft.
Rio Bravo Oil Co.'s No. 82-B Cotton ..... Comp. pumping 2 bbls. oil 450 ft.

GOOSE CREEK—HARRIS COUNTY

Humble Oil & Ref. Co.'s No. 77 Simms-Smith ..... Drlg. sticky shale 6,362 ft.
A. F. Bradbury's No. 5 Gillette ..... Drlg. 1,546 ft.
J. M. West's No. 3 Scorregh ..... Junked and abandoned 6,780 ft.

SPINDLETOP—JEFFERSON COUNTY

Yount Lee Oil Co.'s No. 3 McFaddin (workover) ..... Tested salt water 2,904 ft.; a' andoned.
Yount Lee Oil Co.'s No. 61 McFaddin (workover) ..... Comp. flowing 335 bbls. fluid, 90 per cent water, 3,010 ft.; total depth 5,730 ft.
Yount Lee Oil Co.'s No. 89 McFaddin (workover) ..... Comp. flowing 1,550 bbls. oil 3,069 ft.
Yount Lee Oil Co.'s No. 127 McFaddin ..... Testing sand 5,223 ft.
Yount Lee Oil Co.'s No. 129 McFaddin ..... Comp. flowing 1,700 bbls. oil 4,100 ft.
Yount Lee Oil Co.'s No. 130 McFaddin ..... Salt 2,774 ft.; plugged to 2,665 ft.; flowing 140 bbls. oil.
Yount Lee Oil Co.'s No. 131 McFaddin ..... Spudded.
Yount Lee Oil Co.'s No. 45 Gladys City (workover) ..... No report.

WEST COLUMBIA—BRAZORIA COUNTY

Saxet Oil Co.'s No. 3 Hogg ..... Derrick.

NORTH DAYTON—LIBERTY COUNTY

V. E. Borsodi's No. 1 Gulf ..... Cmtd. csg. to test oil sand 4,345 ft.
V. H. Borsodi's No. 2 Gulf ..... Drlg. gumbo 1,560 ft.
John A. Deering's No. 6 fee ..... Standing.
Harvey Smith's No. 1 Simmons & Brown ..... Drlg. sand and shale 4,816 ft.
The Texas Company's No. 1 Paraffine fee ..... Drlg. shale 4,527 ft.
T. I. Whitley's No. 1 Schindler ..... Location.

HIGH ISLAND—GALVESTON COUNTY

Gulf Production Co.'s No. 10 Smith ..... Spudded.
Marrs McLean's No. 18 Cade ..... Drlg. 250 ft.

ORCHARD—FORT BEND COUNTY

Gulf Production Co.'s No. 22 Moore ..... Sandy shale 3,221 ft.
Gulf Production Co.'s No. 21 Moore ..... Drlg. gumbo and lime 2,662 ft.

ESPERSON—LIBERTY COUNTY

Cranfill-Reynolds Oil Co.'s No. 3 Esperson (workover) ..... Pumping 200 bbls. fluid, 50 per cent water, 3,340 ft.
Cranfill-Reynolds Oil Co.'s No. 5 Esperson ..... Drlg. 3,974 ft.
Cranfill-Reynolds Oil Co.'s No. 9 Esperson ..... Oil sand 3,412 ft.
Cranfill-Reynolds Oil Co.'s No. 3 Davis ..... Drlg. gumbo 756 ft.
Cranfill-Reynolds Oil Co.'s No. 1 Vajdak (workover) ..... Drlg. shale 6,136 ft.
Yount Lee Oil Co.'s No. 3 Moore's Bluff ..... Drlg. 2,986 ft.

REFUGIO—REFUGIO COUNTY

Fox & Heflin's No. 2 Fannie Heard ..... Drlg. sand 3,692 ft.
Houtson Oil Co.'s No. 1 Tom Heard ..... Comp. flowing 100 bbls. 70 gravity oil, 6,450-70 ft.
Houston Oil Co.'s No. 1 Doughty ..... Comp. flowing 75 bbls. 70 gravity oil 5,462-71 ft.
Houston Oil Co.'s No. 1 Vance ..... Drlg. sand 3,680 ft.
Houston Oil Co.'s No. 1 Kay ..... Drlg. sand 3,656 ft.
Houston Oil Co.'s No. 9 Fannie Heard (workover) ..... Bailed salt water 3,718 ft.; plugging back.
Houston Oil Co.'s No. 1 Rose Lambert ..... Cmtd. 12½-in. csg. 493 ft.
Houston Oil Co.'s No. 1-A Fannie Heard ..... Derrick.
Houston Oil Co.'s No. 1 Sitterle ..... Drlg. gumbo and lime 923 ft.
Independent Oil & Gas Co.'s No. 1-C Heard ..... Gumbo 5,589 ft.; shut down.
Houston Oil Co.'s No. 3 Rook, receiver ..... Location.
Independent Oil & Gas Co.'s No. 4 Claude Heard ..... Set screen 3,694 ft.; swa' bing.
Independent Oil & Gas Co.'s No. 5 Claude Heard ..... Comp. flowing 625 bbls. oil 3,698 ft.
Independent Oil & Gas Co.'s No. 1 Mercy Academy ..... Drlg. shale 5,234 ft.
Independent Oil & Gas Co.'s No. 1 Helen Reilly ..... Tested salt water 5,061-85 ft.
Independent Oil & Gas Co.'s No. 1 M. F. Lambert ..... Cored salt water sand 4,073 ft.
Independent Oil & Gas Co.'s No. 1 O'Brien ..... Tested salt water 6,601-07 ft.
Edwin M. Jones' No. 1-A J. F. B. Heard ..... Comp. flowing 500 bbls. oil 3,644-66 ft.
Edwin M. Jones' No. 1-A Mitchell ..... Location.
Edwin M. Jones' No. 1 Jeter ..... Rigging up to pump; sand 3,681-96 ft.
Larco Co.'s No. 4 Strauch ..... Comp. flowing 300 bbls. oil 3,679 ft.
Mission Drlg. Co.'s No. 1 Moss ..... Drlg. hard shale 6,138 ft.
T. P. Morgan's No. 1 St. Johns ..... Drlg. sand and lime 2,462 ft.
Moody-Seagraves Producing Co.'s No. 6 City ..... Comp. flowing 1,075 bbls. oil 3,701 ft.
Moody-Seagraves Producing Co.'s No. 7 City ..... Running tubing 3,695 ft.
Rutherford-Traylor Oil Co.'s No. 1 Cable ..... Total depth 3,698 ft.; cmtd. 6⅝-in. csg. 3,683 ft.
Saxet Oil Co.'s No. 2 Ryals ..... Drlg. gumbo 5,378 ft.
Saxet Oil Co.'s No. 2 Cable ..... Oil sand 3,679-87 ft.; cmtd. 6⅝-in. csg. 3,676 ft.
Saxet Oil Co.'s No. 3 Cable ..... Location.
Strube & Strube's No. 1 Cable ..... Comp. flowing 500 bbls. oil 3,684-97 ft.
Sun Oil Co.'s No. 3 Buckley, Lot 5, Blk. 2 ..... Drlg. sidetracked hole 3,487 ft.
Sun Oil Co.'s No. 4 Buckley ..... Drlg. gumbo and lime 2,013 ft.
Sun Oil Co.'s No. 2 Johnson ..... Oil sand 3,670-85 ft.; swabbing.
Union Producing Co.'s No. 2 Lambert ..... Oil sand 5,391 ft; cmtd. csg.
Union Producing Co.'s No. 3 Lambert ..... Drlg. sticky shale and lime 3,042 ft.
Union Producing Co.'s No. 4 Morgan-Vance ..... Derrick.
Union Producing Co.'s No. 3 O'Brien ..... Sand showing oil 5,422 ft; cmtd. csg.
Union Producing Co.'s No. 4 O'Brien ..... Drlg. sticky shale and lime 5,225 ft.
Union Producing Co.'s No. 3 Powers ..... Drlg. lime 4,163 ft.
Union Producing Co.'s No. 4 Powers ..... Drlg. rock 1,003 ft.
Union Producing Co.'s No. 2 Shelton ..... Drlg. shale 1,704 ft.
Union Producin Co.'s No. 3 Mitchell ..... Drlg. hard shale and lime 4,177 ft.
Union Producing Co.'s No. 4 Mitchell ..... Derrick.
Union Producing Co.'s No. 9 Fannie Heard ..... Drlg. gumbo 1,501 ft.

SOUTH LOUISIANA FIELDS

LOCKPORT—CALCASIEU PARISH

Union Sulphur Co.'s No. 1 Moss ..... Comp. flowing 600 bbls. pipe line oil 4,814 ft.
Vacuum Oil Co. and Gulf Ref. Co.'s No. 26 Miller ..... Drlg. rock 2,133 ft.
Vacuum Oil Co. and Gulf Ref. Co.'s No. 27 Miller ..... Drlg. gumbo 2,635 ft.
Vacuum Oil Co. and Gulf Ref. Co.'s No. 28 Miller ..... Building derrick.
Vacuum Oil Co. and Gulf Ref. Co.'s No. 29 Miller ..... Moving in material.
Vacuum Oil Co. and Gulf Ref. Co.'s No. 5 Freiberg & Wolf ..... Cmtd. 13⅜-in. csg. 1,245 ft.

HACKBERRY—CAMERON PARISH

Calcasieu Oil Co.'s No. 5 Caldwell ..... Drlg. 6,300 ft.
Calcasieu Oil Co.'s No. 18 Watkins ..... Spudded.
Duhon Oil & Mineral Co.'s No. 1 Duhon ..... Derrick.
Rycade Oil Corp. and Humble's No. 1 Gulf Land (workover) ..... To abandon.
Rycade Oil Corp. and Humble's No. 5 Gulf Land ..... Location.
Sun Oil Co.'s No. 1 J. H. Duhon ..... Drlg. 3,200 ft.
Yount Lee Oil Co.'s No. 10 School ..... Drlg. 3,124 ft.

JENNINGS—ACADIA PARISH

The Texas Company's No 5 Rayne heirs, King tract ..... Drlg. 7,906 ft.
Yount Lee Oil Co.'s No. 8 Houssiere-Latrielle, Section 47-9s-2w ..... Drlg. 7,020 ft.
Yount Lee Oil Co.'s No. 6 Crowley ..... Drlg. shale and lime 5,068 ft.

VINTON—CALCASIEU PARISH

Adams Oil Co.'s No. 1 Roderick ..... No report.
Gulf Refining Co.'s No. 50 Star-Vincent ..... Oil sand 2,200 ft.; to test.
Marrs McLean's No. 4 Gray (workover) ..... No report.
Vinton Petroleum Co.'s No. 5 Matilda Gray ..... No report.

BAYOU BOUILLON—ST. MARTIN PARISH

Rycade Oil Corp.'s No. 1 Woodyard Lake ..... Driving piling.
Rycade Oil Corp.'s No. 9 Bouillon Fee ..... Drlg. hard sand and lime rock 3,648 ft.

STARKS—CALCASIEU PARISH

J. O. Davis' No. 1 Industrial ..... Standing 3,775 ft.
Gulf Refining Co.'s No. 21 Latcher-Moore ..... Oil sand 559 ft.; cmtd. csg.

SWEET LAKE—CAMERON PARISH

Pure Oil Co.'s No. 9 Yount Lee ..... T. D. 4,666 ft.; drlg. plug 4,650 ft.

SORRENTO—ASCENSION PARISH

Gulf Refining Co.'s No. 18 United Land Co. ..... Cap rock showing oil 1,640 ft.

MISCELLANEOUS WILDCATS

TEXAS

AUSTIN COUNTY

Black Oil Co.'s No. 1 Lancashire, near Sealey ..... Preparing to resume drilling 3,048 ft.
Empire Gas & Fuel Co.'s No. 1 Boyd, San Felipe ..... Drlg. sand rock 3,615 ft.
O'Hara et al's No. 1 Batia, near Raccoon City ..... Shut down 4,000 ft.

BRAZORIA COUNTY

The Texas Company's No. 1 Ewin, Harvey Little Sur. ..... Drlg. sandy shale 3,870 ft.
Mills Bennett Production Co.'s No. 1 Random, Allen ..... Drlg. hard sand and lime 4,143 ft.
Faust et al's No. 5 Faust ..... Sandy shale 4,083 ft.; cem. 6⅝-in. casing.
Rucks & Patterson's No. 1 Hunter, southwest of Hoskins ..... Shut down 1,185 ft.
Rycade Oil Corp.'s No. 1 Rapid City, Henry Austin Sur. ..... Drlg. gumbo 3,391 ft.
Shell Petroleum Corp.'s No. 1 Blakely-Winston, Danbury ..... Drlg. shale 5,158 ft.
Steel & Strickland's No. 1 Lockridge ..... Rig.
United Oil Syndicate's No. 1 Moores, Francis Moore Sur. ..... Derrick.

CHAMBERS COUNTY

Chicago Oil Corp.'s No. 1 Lawrence ..... Drlg. sand 3,300 ft.
Shell Petroleum Corp.'s No. 1 Herff, Moss Bluff ..... Drlg. gummy shale and lime 3,101 ft.
Pure Oil Co.'s No. 1 Kirby, Charles Tilton Survey ..... Drlg. lime and shale 1,075 ft.
Rycade Oil Corp. and Pure Oil Co.'s No. 1 Jackson, Oyster Bayou ..... Rigging up.
Superior Oil Corp.'s No. 1 Jackson ..... Drlg. shale and sand 2,550 ft.

FORT BEND COUNTY

Gulf Production Co.'s No. 2 Sugarland, Clodine ..... Drlg. 1,651 ft.
Pure Oil Co.'s No. 1 Jackson Brown, Barrett and Harris Survey ..... Drlg. sticky shale 3,737 ft.

GRIMES COUNTY

Cranfill & Reynolds Oil Co.'s No. 1 Baylor, southeast Navasota ..... Drlg. shale 4,234 ft.

HARRIS COUNTY

Baldwin and associates' No. 1 Kitzman, Cypress ..... Shut down 4,247 ft.
Cranfill-Reynolds Oil Co.'s No. 1 Rorick, J. Ogburn Sur. ..... Drlg. 246 ft.
Humble Oil & Ref. Co.'s No. 7 Warren, Hockley ..... Hard sand 5,151 ft.; reaming.
Humble Oil & Ref. Co.'s No. 1 Siadous, Mykawa ..... Pulling screen to deepen 4,933 ft.
Humble Oil & Ref. Co.'s No. 2 Minnetex ..... Standing 1,216 ft.
Rich et als No. 1 Highlands ..... Abandoned derrick.
Sloan Prospecting Co.'s No. 1 Ulrich, Hannah Nash Sur. ..... Coring lime showing oil 5,948 ft.
Strang Oil Co.'s No. 1 Good, Deer Park ..... Drlg. 549 ft.
Martin, Drake & Jones' No. 1 Haney ..... Drlg. tough shale 4,696 ft.

JACKSON COUNTY

The Texas Company's No. 1 C. A. Mitchell, G. Ewing Sur. ..... Rig.

JEFFERSON COUNTY

Bayou Oil Co.'s No. 1 Hooks-Borduge ..... Abandoned 4,510 ft.
Gulf Production Co.'s No. 5 Burrell, Fannett ..... Drlg. shale 5,176 ft.
The Texas Company's No. 1 Fitzhugh, Big Hill ..... Drlg. shale 5,863 ft.
Westbury Oil Co.'s No. 1 West, Choate Sur. ..... Shut down 3,100 ft.

LIBERTY COUNTY

Gulf Production Co.'s No. 4 Boyt, Hankamer ..... Repairing rig after blowout; gas sand 2,719-2,824 ft.
Gulf Production Co.'s No. 5 Boyt, Hankamer ..... Oil sand 2,769-91 ft.; cem. 10-in. casing 2,750 ft.
Gulf Production Co.'s No. 1 A. E. Lee, Hankamer ..... Rig.
Gulf Production Co.'s No. 1 McFadden, Moss Bluff ..... Drlg. gumbo 2,696 ft.
Humble Oil & Ref. Co.'s No. 1 Sabine Tram, Devers ..... Rigging.

MATAGORDA COUNTY

Cockburn et al's No. 1 Hawkins, Shepherds, Mott ..... Drlg. sand 5,270 ft.

MONTGOMERY COUNTY

Kelley-Kaker's No. 2 Guerges ..... Shut down 1,915 ft.

ORANGE COUNTY

Gulf Production Co.'s No. 1 W. H. Starks, Port Neches ..... Building roadway to location.
The Texas Company's No. 2 Kuhn, Port Neches ..... Drlg. gumbo 1,200 ft.
The Texas Company's No. 2 Stark, Port Neches ..... Drlg. sticky shale 2,947 ft.

WALLER COUNTY

Kirby Petroleum Co.'s No. 2 Davis, San Felipe ..... Blew out making estimated 30,000 bbls. fresh water 3,000 ft.; hole bridged.
W. P. Morris' No. 1 Chapman, Donoho Sur. ..... Shut down 2,075 ft.

WASHINGTON COUNTY

W. D. Anderson's No. 1 Mueller ..... Drlg. shale 2,069 ft.

W. Birdwell's No. 1 Schram, James Walker Sur. ..... Shut down 2,110 ft.
Metal et al's No. 1 Schwartz ..... Drlg. gumbo 3,925 ft.
Mid-Kansas Oil & Gas Co.'s No. 1 Sommers ..... Drlg. shale 2,964 ft.
Mid-Kansas Oil & Gas Co.'s No. 1 Johnke, A. Miller Sur. ..... Location.
Sun Oil Co.'s No. 2 Clay, Clay Creek ..... Drlg. hard sand 2,643 ft.
Sun Oil Co.'s No. 1 Draeger, Clay Creek ..... Abandoned 1,281 ft.
Sun Oil Co.'s No. 9 Grote, Clay Creek ..... Rig.

SOUTH LOUISIANA

ACADIA PARISH

Calcasieu Oil Co.'s No. 1 Hays, Sec. 10-8s-1w ..... Drlg. 6,024 ft.
Charles P. Siess' No. 1 Lyons, Sec. 4-10s-1e ..... Location.

CALCASIEU PARISH

Wilfred Lahay's No. 2 James ..... Standing 3,775 ft.

CAMERON PARISH

Shell Petroleum Corp.'s No. 14 Watkins, Black Bayou ... Shut down in lime and calcite 1,071 ft.
Shell Petroleum Corp.'s No. 15 Watkins, Black Bayou ... Location.
The Texas Company's No. 5 Calcasieu Lake, Calcasieu Lake Dome ..... Drlg. cap rock 3,907 ft.
Vacuum Oil Co.'s No. 1 Cameron Meadows, Sec. 21-14s-13w ..... Coring sticky shale showing 3,750 ft.

IBERIA PARISH

The Texas Company's No. 5 Vermillion Bay ..... Building derrick.

IBERVILLE PARISH

Shell Petroleum Corp.'s No. 4 Wilbert, White Castle ..... Drlg. sticky shale 4,892 ft.
Standard Oil Co.'s No. 4 Schwing, Bayou Blue ..... Drlg. 2,220 ft.
Standard Oil Co.'s No. 5 Schwing, Bayou Blue ..... Building derrick.
Standard Oil Co.'s No. 5 Wilbert, Bayou Blue ..... Location.
Standard Oil Co.'s No. 6 Wilbert, Bayou Blue ..... Drlg. 2,816 ft.
Standard Oil Co.'s No. 1 Case, Bayou Des Glaise ..... Drlg. 2,900 ft.
Standard Oil Co.'s No. 2 Case, Bayou Des Glaise ..... Location.

JEFFERSON DAVIS PARISH

Pure Oil Co.'s No. 1 May, Sec. 1-10s-5w ..... Drlg. sand and sticky shale 4,739 ft.
Shell Petroleum Corp.'s No. 1 Heyd, Iowa ..... Rigging up.
Yount Lee Oil Co.'s No. 1 Courtney, Welsh ..... Rig.
Yount Lee Oil Co.'s No. 1 Abbott, Welsh ..... Drlg. 1,200 ft.

LA FOURCHE PARISH

Gulf Refining Co.'s No. 1 City of New Orleans, Bay Champagne ..... Abandoned 6,350 ft.
The Texas Company's No. 1 Leesville ..... Rig.

PLAQUEMINE PARISH

Humble Oil & Ref. Co.'s No. 1 Cockrell-Moran, Lake ... Abandoned 1,739 ft.
Humble Oil & Ref. Co.'s No. 1 Lake Washington, Lake Grand Ecaille ..... Drlg. hard lime 4,945 ft.
The Texas Company's No. 4 State, Garden Island Bay ... Rig.

ST. LANDRY PARISH

Elbof Exploration Co.'s No. 1 Ledoux, Eunice ..... Shut down 4,364 ft.
Herbert-Baker Oil Co.'s No. 1 Fisher, Sec. 10-38-4e ..... Shut down 4,000 ft.
Gulf Refining Co.'s No. 2-A Hoskins, Port Barre ..... Pulling screen to deepen 3,800 ft.
The Texas Company's No. 7 Botney Bay, Port Barre ... Drlg. gumbo 1,100 ft.
The Texas Company's No. 8 Botney Bay, Port Barre ... Location.

ST. MARTIN PARISH

The Texas Company's No. 1 Iberville, Hager ..... Abandoned 6,764 ft.

ST. MARY PARISH

Pure Oil Co.'s No. 2 Wax Lake, Sec. 12-17s-9e ..... Gumbo 1,210 ft.; cem. 13⅜-in. casing 1,200 ft.

TERREBONNE PARISH

Charles Paggi's No. 2 Evergreen, Sec. 145-15s-16e ..... No report.
The Texas Company's No. 4 State-Bay St. Elaine ..... Drlg. hard sand 4,217 ft.
The Texas Company's No. 1 La. L. & E. Co., Bay Junope.. Location.
The Texas Company's No. 2 State, Lake Pelto ..... Drlg. water sand 1,361 ft.
The Texas Company's No. 3 State, Caillou Island ..... Location.
The Texas Company's No. 4 State, Lake Barre ..... Building derrick.
The Texas Company's No. 3 La. L. & E. Co., Four Isle ... Drlg. hard sand 3,613 ft.
The Texas Company's No. 2-A State, Dog Lake ..... Rig

WILDCAT OPERATIONS IN SOUTHWEST TEXAS

(Continued from Page 50)

S. H. Cargill's No. 1 B. Lynch, 150 ft. from S and E lines 50-ac. tract, in the B. Benton Sur. ..... T. D. 1,850 ft.; abandoned.
Danciger Oil & Ref. Co. and Buchanan's No. 4 Dale School ..... Location.
Trinity Drillers' No. 1 McMullen, 2,125 ft. from NE line, 150 ft. from NW line of Sur., Gibson Betty Sur. .... T. D. 2,890 ft.; drlg. in Taylor marl; running several hundred feet below normal.

DEWITT COUNTY

Gibson & McIntyre's No. 1 William Van Roeder ..... T. D. 1,480 ft.; shut down.
Republic Prod. Co.-Simms Pet. Corp.'s No. 1 E. T. Clark 778-ac., 1,450 ft. from SE line, 7,500 ft. from SW line of tract in the Jose Santos, 4 miles S from Yorktown ..... T. D. 300 ft.; set surface csg.
Louisiana Oil & Ref. Co.'s No. 1 William Kleavermann 100-ac., 400 ft. out of the NE cor. of tract, 3 miles SW of Nordheim near Karnes County line in the Robert Gallettry Sur. ..... Derrick.
H. T. Roe's No. 1 Leinhardt ..... T. D. 2,142 ft.; drlg. in soft sandy lime.

DUVAL COUNTY

T. W. Callahan and W. M. Howard's No. 1 J. M. Luby, 3,960 ft. N line, 3,960 ft. W line Sur. 24 ..... T. D. 60 ft.; drlg.
Southern Crude O. P. Co.'s No. 1 John Dinn, 3,450 ft. S line, 119 ft. W line of Sur. 480 ..... T. D. 1,600 ft.; drlg.
Southern Oil Co.'s No. 1 Welder Wood, Sur. 216 ..... T. D. 750 ft.; standing waiting on water.

EDWARDS COUNTY

Phillips Pet. Corp.'s No. 2 A. G. Holman, 330 ft. from N and E lines of SE of tract, C.C.S.D.&N.G.R.G. Sur. No. 25 ..... T. D. 1,005 ft.; drlg. in lime rock.
Griffith's No. 1 Wardlaw, 150 ft. from S line, 1,505 ft. from Sec. 60, Blk. US, J. J. Clift Sur. ..... T. D. 3,000 ft.; shut down, contract depth.

FRIO COUNTY

Walton & North's No. 1 Trebble, 150 ft. N line, 150 ft. E line, Sec. 64, in the Henry Castro Sur. ..... T. D. 3,491 ft.; drlg. in Edwards.

FAYETTE COUNTY

Kelly et al's No. 1 E. M. Burke, in the C. J. A. Weaver Sur. ..... T. D. 488 ft.; shut down.
Moore et al's No. 1 Kerr, 250 varas S of CNL of M. Muldoon lease ..... T. D. 2,485 ft.; shut down.
Muldoon Oil Co.'s No. 1 J. A. Kerr, 2,900 ft. from S, 3,250 ft. from W of M. Muldoon Sur., 2 miles W of Muldoon ..... T. D. 2,510 ft.; drlg. in sandy shale.

GOLIAD COUNTY

Humble Oil & Ref. Co.'s No. 1 Lackey & Weldon, 2,000 ft. from SE and SW lines of the Lackey & Weldon 1,000-ac. tract out of the most SW cor. thereof, in the Javiano Gomez Sur. ..... T. D. 3,340 ft.; drlg. in shale.

GONZALES COUNTY

Acme Oil & Royalty Corp.'s No. 1 Weber, Thomas Wright Sur. ..... T. D. 2,350 ft.; coring sandy shale.
Fitzsimmons & Perrinot's No. 1 Z. Huber, 2,100 varas from NW line, 1,450 varas from NE line (river) of survey, 2¾ miles SE of Darst Creek, in Stephen Smith Sur. ..... T. D. 3,180 ft.; set 3,151 ft. csg.
A. J. Keiffer et al's No. 1 B. B. Dix, 5,550 ft. W of E line, 2,775 ft. N of S line (Guadalupe River) in the Ira Nash Sur., 4 miles SE from Darst Creek ..... T. D. 2,800 ft.; pulling stuck drill stem.
Atibus et al's No. 1 C. Martin, 268 ft. from N line, 2,650 ft. W line 210-ac. tract in the M. A. Williams Sur. ..... T. D. 1,900 ft.; drlg. in sandy shale.
Alice R. Garrett's No. 1 W. H. Cardwell, 150 ft. from SW line, 1,650 feet from SE line of Sur., 12 miles S from Gonzales, in the Byrd Lockhart Sur. ..... Spudded and shut down.
United North & South Dev. Co.'s No. 2 J. A. Kerr, 1,150 ft. S line, 750 ft. W line of tract in the A. K. Clark Sur. ..... T. D. 4,975 ft.; drlg. in Taylor marl.
Finnell & Elam's No. 1 J. F. Robinson, 2,000 ft. N line, 4,420 ft. E line, in the J. H. Livergood, 2½ miles NE from Waelder ..... T. D. 1,550 ft.; drlg. in sandy shale.

GUADALUPE COUNTY

Grayburg Oil Co.'s No. 2 Wells, 5,730 ft. E line, 2,490 ft. S line of NE cor. of Wells tract in the James D. Baume Sur., 6 miles SW from Darst Creek ..... Laying water line.
Morgan Lewis et al's No. 1 Link (80 acres), 2,780 ft. E of SW line (Guadalupe River), 835 ft. from NW line of Link 80-ac. tract in the A. M. Esnaurrizar Sur., 7 miles NW from Seguin ..... Spudded in.
Mid-Kansas Oil Co.'s No. 2 Waldrop, 750 ft. E from E line, 1,950 ft. from N line 330-ac. tract in the George Allen Sur., near Staples ..... Location.
Whisenant & Fowler's No. 1 M. Blumberg, 150 ft. each way from SE cor. of 128-ac. tract in the Moses Baker Sur., 1½ miles NW from McQueeny ..... T. D. 775 ft.; drlg. in chalk.
Suttle et al's No. 1 A. Baenziger, 150 ft. from SE cor. of 125-ac. tract in the A. O. Mansola Sur., 5 miles S from Seguin ..... T. D. 1,140 ft.; shut down (temp.).
Mid-Kansas Oil Co.'s No. 1 Waldrop, 1,950 ft. from E line, 1,050 ft. from N line of 336-ac. tract in the George Allen Sur., near Staples ..... T. D. 1,075 ft.; abandoned in shale.
Tidal Oil Co.'s No. 1 J. Seiligman, 150 ft. from N and E lines of the J. Seiligman 40-ac. NW cor. of J. H. Williamson Sur., 15 miles S from Seguin ..... Drlg. water well.
Trinity Drillers' No. 1 J. M. White, 975 ft. from NE line, 750 ft. from SE line of 166-ac. farm in the Mich Miller Sur. ..... T. D. 2,108 ft.; drlg. in Taylor marl.

JACKSON COUNTY

The Texas Company's No. 1 Ward Ranch, 1,750 ft. SE from NW cor. David Hoffman Sur. along NE line of Sur., thence at right angles 1,400 ft. SW part of county ..... Location.

JIM WELLS COUNTY

E. W. Ogden's No. 1 G. Farris, M. Perez Sur. ..... T. D. 2,615 ft.; shut down.

KARNES COUNTY

Hewitt et al's No. 1 H. N. Matula, 450 ft. from E and center of NW and SE lines of 125-ac. farm, in the Victor Blanco Sur. ..... Spudded in and shut down.
Harbor Oil & Gas Co.'s No. 1 W. E. Porter, 1,200 ft. from N line, 900 ft. E line of tract in the W. Blanco Sur. ..... Location.
Mundine Investment Co.'s No. 1 A. D. Wilburn, C of 143 ac. in H. K. Hardy Sur., 3 miles SE from Dunge ..... Location.
Hewitt et al's No. 1 W. E. Porter ..... T. D. 3,650 ft.; shut down.

KENDALL COUNTY

Borgett et al's No. 1 Haag, W. Avery Sur. ..... T. D. 725 ft.; csg. parted.
Sitten et al's No. 1 Garvin, C of NE of D. L. Richardson Sur. in the D. L. Richardson Sur., 1 mile NE from Kendalia ..... T. D. 400 ft.; sandy lime; shut down.
Dickinson et al's No. 1 Edmondson, 150 ft. from S line, 3,500 ft. from W line of tract in the J. O. Blair No. 72 Sur., 1 mile NW from Kendalia ..... Moving on.
Seaboard Oil & Gas Co.'s No. 1 W. Asken, SW cor. of Sur. in the Miguel die Toro Sur., 3 miles N from Sisterdale ..... T. D. 678 ft.; drlg. in black shale.
Dixon Oil Co.'s No. 1 Ottmer Behr, W of H.T.&B.R.R. Sur., 3½ miles SE from Sisterdale ..... T. D. 1,050 ft.; setting 8-in. csg.

KERR COUNTY

Mashe & Tunstill's No. 1 Love Ranch, 1,000 ft. from W line of Sec. 1,594, 100 ft. S of S line of Sec. 1,597, in the G.C.S.D.&R.G.N.G. Sur. ..... Moving in.

KINNEY COUNTY

Lloyd Oil Co.'s No. 1 G. B. Moore, Sur. 117 ..... T. D. 3,000 ft.; producing sulphur water.
Magnolia Petroleum Co.'s No. 1, SE cor. of Bladz Sur., near S.P.R.R., close to Blume test on Wardlow ranch, W part of county, 2½ miles from Blume .... Moving in tools.
A. Blume et al's No. 2 Herbst, 1,731 ft. W and S lines of Sur., in the Poindexter-Burns Sur. ..... T. D. 200 ft.; drlg. in lime.
Mardon Oil Co.'s No. 2 Jim Clamp, in the John Winter Sur. No. 346, near No. 1 ..... T. D. 498 ft.; shut down in chalk.

LASALLE COUNTY

Salt Lake City Pet. Co.'s No. 1 Beckwith, Sur. 17, 150 ft. S line, 150 ft. E line ..... T. D. 2,760 ft.; standing.

LAVACA COUNTY

McElreath & Suggett's No. 1 Julius Heinshohn, 361 ft. to E, 523 ft. to S line of farm, in the G.W.&W.H. Sur. ..... T. D. 1,114 ft.; drlg. in sandy shale.

LEE COUNTY

Byrd et al's No. 1 H. L. Bastle, 1,200 ft. N and 1,000 ft. E of 80-ac. tract of Wm. Johnson ..... T. D. 3,612 ft.; shut down; hole full of water.
Texas-Louisiana Carbon Corp.'s No. 1 Bryan, in the S. F. Austin Sur., 1,200 ft. N and W of 1,200-ac. farm.. T. D. 3,380 ft.; drill stem stuck.
Todor Oil Corp.'s No. 1 H. Zoesch, in the J. Meeks Sur., 150 ft. N and 900 ft. W of S. Meeks Sur. ..... T. D. 2,000 ft.; shut down.

LIVE OAK COUNTY

Simmons Oil Co.'s No. 1 Richard Coquat, in James C. Hill Sur., 2,250 ft. to S line, 1,750 ft. to E line, 7 miles NE of Oakville ..... T. D. 4,012 ft.; shut down; awaiting orders.

MAVERICK COUNTY

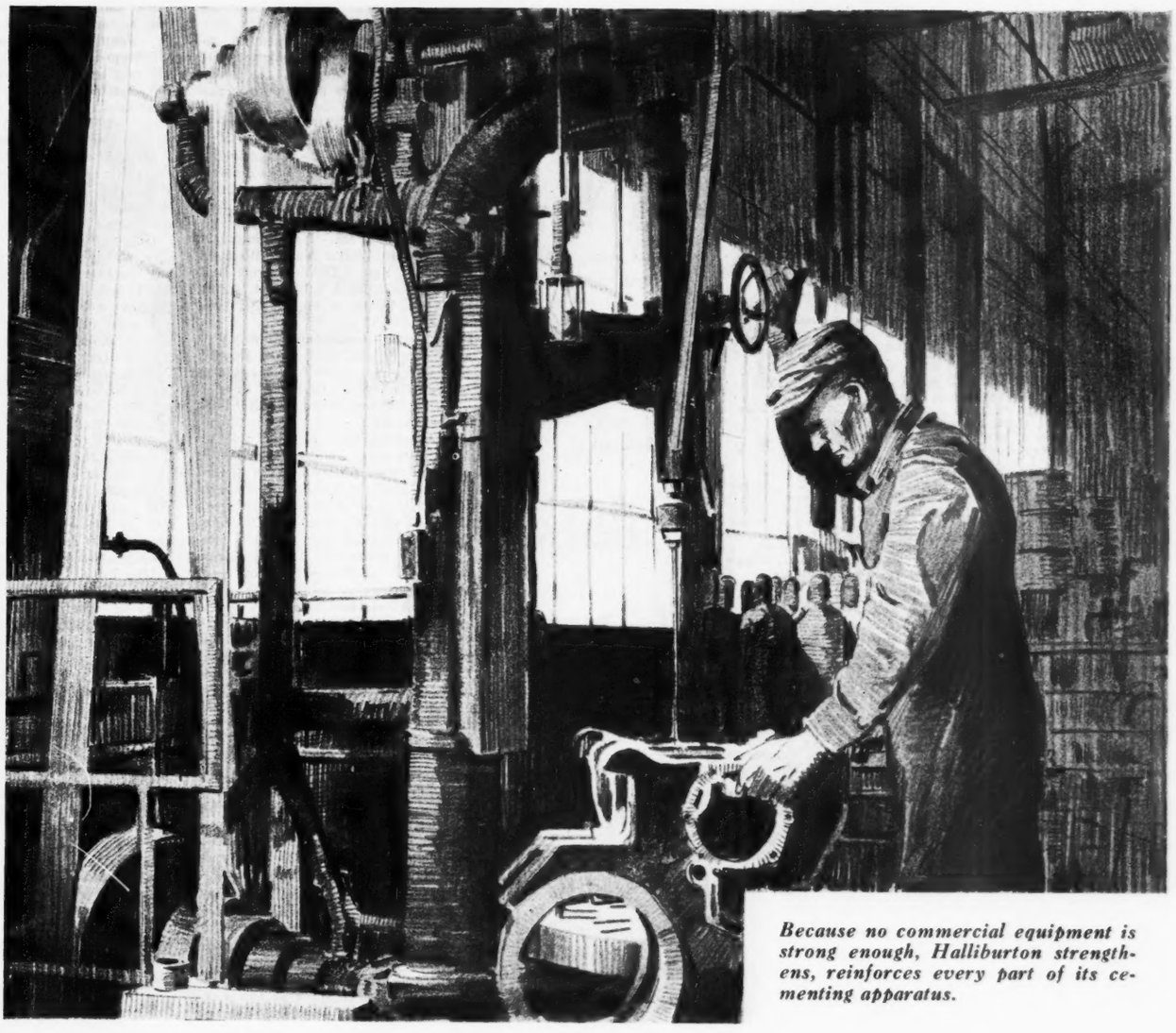
Rycade Oil Corp.'s No. 6 Chittim, 1,455 ft. from S, 320 ft. from W of Sec. 116, Blk. 7, I.&G.N. Sur. ..... T. D. 2,636 ft.; shut down.
Rycade Oil Corp.'s No. 5 Sullivan, in C of Sec. 82, Blk. 7, in the I.&G.N. Sur. ..... T. D. 3,845 ft.; drlg. in lime rock.

MEDINA COUNTY

Pat Armstrong's No. 1 C. W. Butts, in George C. Hanson Sur. ..... T. D. 1,300 ft.; drlg.
Pan American Pet. Co.'s No. 1 Antoine Hart, in Harrison Sur. No. 799, 15 miles S from Hondo ..... T. D. 550 ft.; drlg. in sandy shale.
Pearson Oil Co.'s No. 5 Medina Irrigated Lands, 1,500 ft. W of E line, 1,800 ft. N of S line of survey, Lot 3, 100 ft. E of No. 4 in the J. S. Palmer Sur. ..... T. D. 922 ft.; plugging back.
Donaldson Oil & Dev. Co.'s No. 2 Adams Co., James Hillenmeyer No. 25 Sur., 500 ft. to E line of Sur., 150 ft. to S line of N half of Sur. ..... Rig up.
Pat Armstrong's No. 1 Crawford, 1,389 ft. N line, 2,550 ft. E line of Sur., 478.6 miles W from Devine ..... Rigging up.
Pure Oil Co.'s No. 1 Nick F. Fahn, in Amos Hudson Sur. No. 587, near NW line of Sur. ..... T. D. 1,800 ft.; coring lime rock; no definite information.

MILAM COUNTY

Service Oil & Gas Co.'s No. 1 Muldrow, L. Taylor Sur., SE cor. ..... Location.
Hill & Bonwell's No. 1 B. Booker, James Welch Sur. .. Fishing 2,020 ft.
Lloyd Oil Corp.'s No. 1 San Clement, Fokes Sur. ..... Spudded in.
A. H. Wray's No. 1 D. D. Fowler ..... T. D. 1,688 ft.; sidetracked; 260 ft. of drill pipe lost in hole; now drlg.



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NUECES COUNTY

H. Grimm et al's No. 1 A. R. Roberts, Blk. 79, Winter Vegt. Garden Subd., 6 miles NW of Robstown, 13 miles NE Agua Dulce Field ..... T. D. 3,535 ft.; shut down; waiting on orders; contract depth.

SAN PATRICIO COUNTY

George B. Pickett's No. 1 Baldwin, 9,000 varas due E of Denton, 1,200 ft. S of the SE cor. of O'Niel Sur., Abstract 211 ..... T. D. 1,640 ft.; drlg. in gumbo.

LaFeria Oil & Gas Co.'s No. 1 C. C. Smith, in J. C. White Sur., 690 ft. to N line, 350 ft. to E line ..... T. D. 2,740 ft.; drlg. in gumbo and boulders.

STARR COUNTY

Smith & Adams' No. 1 Welch, Perdernal Sur. ..... T. D. 841 ft.; standing.

UVALDE COUNTY

Waldrop & Welch's No. 1 H. S. Benson, 2 miles NW of Uvalde ..... T. D. 940 ft.; shut down in lime (depth corrected).

Waldrop & Welch's No. 1 E. R. Edmonds, 1,750 ft. NW, 7,200 ft. W of Sec. 71, in the A. Gomez Sur., 8 miles S of Uvalde ..... T. D. 750 ft.; shut down in Edwards lime.

Phantom Oil Co.'s No. 1 Claudt, Sec. 611 ..... T. D. 1,320 ft.; drlg. in lime.

VICTORIA COUNTY

Lion Oil & Ref. Co.'s No. 1 J. A. McFadden, 2,577 ft. W, 514 ft. N from NE cor. of C. O. Edwards tract in M. J. Traviesa Sur. ..... Spudded in.

WILLACY COUNTY

Weimer-Richardson's No. 1 Elmore ..... T. D. 1,860 ft.; shut down in gumbo.

WILLIAMSON COUNTY

Harlem et al's No. 1 H. H. Stiles, in the J. Bevil Sur., 220 ft. N and 330 ft. E of Sur. ..... Rigging up.

Fred Beatty's No. 1 H. Bland, 450 ft. from N line, 1,000 ft. from E line of tract, in the P. Coursey Sur., 1 mile E from Taylor ..... T. D. 1,176 ft.; shut down.

Fred Beatty's No. 1 J. B. Pumphrey, 1,328 ft. from S and E lines of Mrs. J. B. Pumphrey 168-ac. tract, in the W. Cartwright Sur. ..... Rigging up.

M. Bartlett et al's No. 1 R. E. Thomas, 450 ft. from N line, 170 ft. from E line of S 50 of 100-ac. of farm in the H. Owen Sur. ..... Spudded in.

E. L. Chapman's No. 2 J. H. McConnell, 1,070 ft. from W line, 150 ft. from N line of tract in the S. Miller Sur. ..... Rigging up.

Elliot et al's No. 1 S. W. Jones, 600 ft. from W line, 400 ft. from S line of Alvert Nantz Sur. ..... Spudded in.

McNeil & Peterman's No. 1 Marie Olive, 150 ft. from E line, 150 ft. from N line of 114-ac. tract in the S. Miller Sur. ..... Rigging up.

E. L. Chapman's No. 2 Fuchs, 150 ft. SW line, 750 ft. NW line of 93-ac. tract, in the S. Miller Sur. ..... T. D. 1,000 ft.; drlg.

G. B. Peterman's No. 2 J. C. Abbott, 450 ft. from S and W line of Abbott 100-ac. tract, in the Simon Miller Sur., SE from Thrall ..... Rigging up.

Bridwell et al's No. 1 H. L. Martin, 1,150 ft. from N line, 150 ft. from W line of Simon Miller Sur. ..... Rigging up.

McNeil et al's No. 1 R. L. Abbott, 330 ft. NW line, 150 ft. NE line of Abbott 15-ac. tract, in the S. Miller Sur. ..... Spudded in.

Powell & Kykendall's No. 1 Christian Mager, in the W. Byerly Sur., 150 ft. N and 450 ft. E of farms of 150 acres ..... Old well deepening.

E. L. Chapman's No. 3 W. Fuchs, 170 ft. from S, 753 ft. E of NW cor. of R. L. Abbott farm, or 350 ft. E of No. 2, in Simon Miller Sur. ..... Derrick.

E. L. Chapman's No. 1 Barney Lawrence, 330 ft. from SE and SW lines of farm, in the Simon Miller Sur. .. Rigging up.

E. L. Chapman's No. 1 J. F. McConnell, 150 ft. from S and W of 100-ac. farm, in the Simon Miller Sur. .. Derrick.

E. R. Ertell's No. 1 J. F. McConnell, 295 ft. from N line, 180 ft. from W of S 50-ac. of 100-ac. farm, in the Simon Miller Sur. ..... Derrick.

Keeshan et al's No. 1 R. L. Abbott, 170 ft. from N line, 772 ft. from W line of farm, in the Simon Miller Sur. ..... Derrick up.

E. W. Marts et al's No. 1 R. L. Abbott ..... Spudded in.

Taylor Temple Oil Co.'s No. 1 F. M. Cain, 876 ft. from E line, 150 ft. from N line of C. D. Johnson 109-ac. tract, in the S. Miller Sur. ..... Rigging up rotary.

J. A. Thompson's No. 1 T. H. Martin, 150 ft. N and E lines of 20-ac. tract, in the S. Miller Sur. ..... Location.

Westheimer & Daube's No. 1 R. L. Abbott, 150 ft. from N and W lines of 57-ac. tract, in the S. Miller Sur. .. Location.

R.R. Wilder's No. 1 H. T. Martin, 158 ft. from N and E lines of H. T. Martin 76.25-ac. tract, in the S. Miller Sur. ..... Rigging up rotary.

L. W. Wilson et al's No. 1 W. L. Lawrence, 150 ft. from W line and C N and S of 35-ac. tract or 1,400 ft. from SW line, 1,450 ft. SW line of H. Owens Sur. .... Spudded in.

ZAPATA COUNTY

John Pappas' No. 2 Cuellar, Por. 33 and 34 ..... T. D. 1,880 ft.; sand 1,880-90 ft.; failed to locate sand through tester; standing; show gas.

B. F. Nixon's No. 1 A. Gutierrez, 170 ft. S line, 332 ft. E line, Lot 5, Blk. 3, Partition 10, Borrego grant .... Rigging up.

National Oil Co.'s No. 1 D. B. Adams ..... T. D. 690 ft.; shut down; lack of water; making considerable gas; blowout from shallow depth while pumping for water.

ZAVALA COUNTY

Weigand Bros.' No. 1 W. L. Gates, Hooper & Wade Sur. No. 13, 1,320 ft. S of N line, 1,320 ft. W of NE cor. Sur., about 16 miles S of Batesville ..... T. D. 2,240 ft. (corrected depth); drlg. in hard limy formation.

Jack Baldwin's No. 1 J. R. Price, in the W. E. Erskin Sur. No. 34 ..... Spudded in and shut down.

Southern Crude Oil Purch. Co.'s No. 1 Nat M. Washer, in the T. Pinckhardt Sur. No. 180, 1 deg. E, 6,795 ft. from SE cor. ..... T. D. 3,771 ft.; gray lime; drlg.

Ike Pryor's No. 1 Martha Campbell, 400 ft. from N line, 5,400 ft. from E cor. of Sur., Sec. 99, in the Martha Campbell Sur., 3½ miles NE from La Pryor .. T. D. 1,300 ft.; shut down.

F. Baldwin's No. 1 Washer, 300 ft. S and E of Sec. 34, in the W. E. Erskin Sur. ..... Spudded in and shut down.

SOUTHWEST TEXAS

(Continued from Page 50)

ducing in the field during the month of March.

Commission Rules

Rules governing the drilling and completion of wells in the Darst Creek Field have been adopted after a hearing held by the Texas Railroad Commission in Austin. The evidence was taken under advisement for a period of three weeks. Evidence showed that the Gulf Production Co. was in the habit of drilling into the Edwards 31 feet, The Texas Company 37 feet, Humble Oil & Refining Co. 32 feet, and Magnolia Petroleum Co. 39 feet. The Texas Company wells were on top of the structure and had the least water.

The commission made no rule as to the depth into the Edwards but the experience of the companies showed that the shallow drilling resulted in less water. The commission passed two rules to govern the field, the first that the producing string of casing must be set as nearly as possible in the base of the Georgetown and the second not less than 100 sacks of cement be used using the pump and two-plug method.

The commission recommended to operators that they use care and not drill too deep into the Edwards, the lower members of which are more porous and produce most water.

COMPLETIONS

Jennings Pool—Zapata County

W. R. Shankle's No. 1 E. Gutierrez, 150 feet northeast line, 3,014 feet northwest line, Share 4, Fansler Partition in the Comitas grant, total depth 1,258 feet, estimated 100 bbls.

Carolina-Texas Pool—Webb County

George S. Marshall's No. 2 Webster, 810 feet south line, 1,170 feet west line, Survey 684, total depth 3,078 feet, standing 1,500 feet in oil, estimated 150 bbls. 48 gravity.

Darst Creek—Guadalupe County

Empire Gas & Fuel Co.'s No. 4 Dowdy, 492 feet north line, 150 feet from east line of tract in the J. C. Darst Survey, total depth 2,620 feet, estimated 200 bbls. 15 per cent water.

Gulf Production Co.'s No. 1-B DixMcKean, 450 feet south and north lines, 150 feet east and west lines of 19-acre tract, offset to Magnolia's No. 1-A Roamel in the J. R. Robinson Survey, total depth 2,421 feet, flowed at rate of 2,200 bbls. per day first one-half hour. Same company's No. 2 Knoblock, 150 feet from southeast corner of 35-acre tract in the J. R. Robinson Survey, total depth 2,566 feet, flowed 3,900 bbls.

Humble Oil & Refining Co.'s No. 4 Yates Wilson, 172 feet west, 150 feet north of southeast corner of tract in the J. C. Darst Survey, total depth 2,643 feet, pumped 180 bbls., 12 per cent water.

Magnolia Petroleum Co.'s No. 4 S. M. Roamel, 40 feet from east line, 400 feet north line of 40-acre tract, offset to Cranfill-Reynolds' No. 1 Appling on southwest in the James Hodges Survey, total depth 2,495 feet, pumped 1,400 bbls. Same company's No. 2-A Roamel, 150 feet north of south line, 450 feet west of east line or 300 feet southwest of No. 1-A Roamel, total depth 2,500 feet, swabbing 55 bbls. per hour, may deepen.

The Texas Company's No. 5 Lemmie Anderson, 450 feet south line, 418 feet west line of 50-acre tract in the J. C. Darst Survey, total depth 2,575 feet, flowed 1,020 bbls. Same company's No. 1 Schmidt and others, 150 feet south and east lines of 179-acre tract in the J. C. Darst Survey, total depth 2,616 feet, swabbed 1,038 bbls. Same company's No. 1 Yates Wilson, 150 feet from north line, 172 feet from east line of tract, offset to Humble's No. 2 Tadlock in the J. C. Darst Survey, total depth 2,635 feet, swabbed 104 bbls., 83 per cent water.

United North & South Development Co.'s No. 3 Thomas Dix, 150 feet from northeast corner of 50-acre tract, offset to Magnolia's No. 1-A Roamel in the J. R. Robinson Survey, total depth 2,506 feet, flowing about 1,500 bbls. Same company's No. 4 Thomas Dix, 450 feet west of east line, 150 feet south of north line of Dix 50-acre tract, 325 feet southwest of Magnolia's big well in the J. R. Robinson Survey, total depth 2,584 feet, flowing 2,200 bbls.

Dobrowolski Pool—Bexar County

Penn-Tex Oil Co.'s No. 2 Dobrowolski, 150 feet from south line, 150 feet from east line of west 67 acres of Dobrowolski 147-acre tract in the M. Menchaca Survey, total depth 520 feet, 3,000,000 feet of gas.

ABANDONED TESTS

Agua Dulce Field—Nueces County

Agua Dulce Oil & Gas Co. and South Texas Production Co.'s No. 1 J. A. Daudermann, 450 feet south and north lines, 450 feet west and east lines of Block 13 of the southeast quarter of Section 32, Benton Pasture Subdivision, total depth 2,360 feet, temporarily abandoned, salt water.

Cole Pool—Webb County

South Texas Production Co.'s No. 1 Perez-Leal, 150 feet west line, 2,492 feet north line, Survey 667, total depth 3,009 feet, abandoned.

NEW LOCATIONS

Cole Pool—Webb County

French Oil Corp.'s No. 1 Rosa Benavides, 150 feet north line, 150 feet west line, Survey 659, rigging up.

Jennings Pool—Zapata County

Killam-Duggan's No. "C" 15 Cuellar, 807 feet east of northwest corner, south 200 feet north line of Survey No. 298, total depth 1,150 feet, drilling.

DRILLING ACTIVITY

Pettus Area—Bee County

Humble Oil & Refining Co.'s No. 2 J. J. McKinney, 600 feet south of No. 1 McKinney, 150 feet east of west line of Randolph Survey, total depth 3,951 feet, set 6⅝-inch casing.

Union Producing Co.'s No. 7 George Ray, 450 feet northwest of No. 1 McKinney discovery, Kerr Survey, total depth 3,941 feet, set 6⅝-inch casing. Same company's No. 8 George Ray, 350 feet due west of Humble's No. 2 McKinney in the Kerr Survey, total depth 2,250 feet, drilling in gumbo.

Lasater Pool—Brooks County

Houston Oil Co.'s No. 1 Holbein-Wormser, 330 feet north line, 6,540 feet east line direct offset 660 feet south of No. 1 Lasater, total depth 5,850 feet, drilling in sandy shale.

Cartwright—Live Oak County

Houston Oil Co.'s No. 1 R. Boothe, 3,000 feet from west line, 300 feet south line in the M. B. Kilvin Survey, total depth 1,850 feet, drilling in shale.

Agua Dulce Pool—Nueces County

Houston Oil Co. of Texas' No. 1 M. E. Brooks, 330 feet from north and east lines of fractional Section 29, Benton Pasture Subdivision, Los Sauces grant, total depth 1,000 feet, fishing for stuck drill stem.

Nursery Pool—Victoria County

Humble Oil & Refining Co.'s No. A-3 Jay J. Welder, 1,634 feet southeast lines, 736 feet southwest lines in the D.L.&C. Survey, 1½ miles northeast from Nursery, total depth 6,300 feet, drilling in shale.

Lion Oil & Refining Co.'s No. 1 J. A. McFadden, 2,577 feet west, 514 feet north from northeast corner of C. O. Edwards Survey, in M. J. Traviesa Survey, spudded in.

Dobrowolski Pool—Bexar County

Penn-Tex Oil Co.'s No. 1 Dobrowolski, 450 feet from south line, 150 feet from east line, west 67 acres of 147-acre tract in the M. Menchaca Survey, 5 miles southeast from San Antonio, total depth 660 feet, drill stuck.

Bruner Pool—Caldwell County

Humble Oil & Refining Co.'s No. 5 T. Briscoe, 1,150 feet from west 150 feet from north line of 56-acre tract in the J. Hinds Survey, location.

Lytton Springs—Caldwell County

Crnafill-Reynolds' No. 3 Strawn, 150 feet east line, 150 feet south line of farm in the P. Martinez Survey, 4 miles west from Lytton Springs, location.

Darst Creek—Guadalupe County

Empire Gas & Fuel Co.'s No. 5 Dowdy, 792 feet from north line, 150 feet from east line of tract in the J. C. Darst Survey, derrick. Same company's No. 3 Knoblock, 150 feet south line, 450 feet east line of 40-acre tract in the J. R. Robinson Survey, moving on.

Humble Oil & Refining Co.'s No. 5 D. D. Baker, 150 feet from north line, 150 feet east line of tract in the J. C. Darst Survey, building derrick. Same company's No. 1 Sally Wilson, 150 feet from north line, 183 feet from west line, location. Same company's No. 4 Sally Wilson, 500 feet east of No. 2, 150 feet north line of tract in the Jacob Darst Survey, derrick. Same company's No. 1 Yates Wilson, 150 feet from north and west lines of tract, location.

Magnolia Petroleum Co.'s No. 2 Appling, offset to No. 1 Appling on southwest, east end of field in the James Hodges Survey, total depth 1,800 feet, small well, shut down. Same company's No. 1 Fannie Nixon, 1,650 feet east and west lines, 150 feet south and north lines of 200-acre tract in the L. W. Alexander Survey, 1½ miles southeast from Darst Creek, total depth 2,808 feet, drilling to Del Rio. Same company's No. 2 Richburg, 450 feet from west line, 150 feet from south line of 102-acre tract in the east corner of the J. R. Robinson Survey, location. Same company's No. 3 M. E. Roamel, 450 feet north and south

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THERE are several mud pump valves on the market that resemble the MacClatchie. Some of them appear to be outright imitations of the original valve which was pioneered by this company. The organizations marketing these imitations know why the MacClatchie is more popular with the field man than any other make. They realize that its efficiency . . . its simplicity of construction and its long life make it the ideal valve for any make or size of mud pump. The wonderful market for such a valve is evident to these other manufacturers, who know their markets. Purchasers may now be assured, however, that they can safely standardize on the original MacClatchie without fear of having trouble in getting replacements.

Several U. S. patent applications will soon mature to definitely discourage imitations and to forbid further activity on the part of infringers. MacClatchie Manufacturing Company, Oilfield Specialties—Aircraft Engines, Compton, California.

lines, 150 feet west and east lines of tract in the J. R. Robinson Survey, total depth 2,862 feet, in lime rock, setting 6⅝-inch casing.

Sun Oil Co.'s No. 7 Knoblock, 1,366 feet from southwest line, 150 feet from northwest line of tract in the J. R. Robinson Survey, derrick. Same company's No. 2 Manford, 150 feet from southwest line of tract, 300 feet southeast of No. 1 well, approximately 600 feet east of Penn Oil Co.'s Manford producer in the J. Hodges Survey, location.

The Texas Company's No. 7 Dallas Wilson, 150 feet south and east lines of 40-acre tract in the J. C. Darst Survey, location.

Trigg and others' No. 1 Fred Warren, approximately 3,000 feet southwest of Magnolia's No. 1 Nixon in the northeast corner of the John H. Burnham Survey, 1½ miles southeast from Darst Creek, total depth 1,420 feet, drilling in shale.

Cole Pool—Duval County

F. S. Bain and Miller I. Shaw's No. 1 S. Benavides, 1,950 feet west line, 180 feet north line, Survey 173, spudded in, set 10-inch casing at 40 feet.

Wilkins Seacord's No. 1 S. Benavides, 660 feet northwest line, 150 feet northeast line, Block 8, Survey 174, derrick.

Cole Petroleum Co.'s No. 68 Rosa Benavides, 660 feet northeast line, 660 feet northwest line, Cole Subdivision, Mariano Arispe grant, Block 11, Survey 14, total depth 3,590 feet, drilling.

Kohler Pool—Duval County

Humble Oil & Refining Co.'s No. 44 Kohler, 495 feet north line, 495 feet east line, Survey 424, total depth 200 feet, drilling.

Simms Oil Co.'s No. 9 Dinn, 660 feet east line, 660 feet south line of northwest of southeast of Survey 143, rigged up, standing.

Humble Oil & Refining Co.'s No. 41 Kohler, 2,970 feet south line, 330 feet east line, Survey 165, location.

Driscoll Pool—Duval County

Robert Driscoll's No. 11 Robert Driscoll, 560 feet east line, 1,050 feet south line, Survey 448, total depth 2,900 feet (approximately), testing sand.

Schoolfield-O'Byrne—Duval County

Magnolia Petroleum Co.'s No. 1 Hahl Strip, 3,890 feet east line, 600 feet south line, Survey 61, total depth 10 feet, drilling.

Roma Pool—Starr County

The Texas Company's No. 1 "B" V. C. de Guerra, 150 feet south line, 150 feet west line of north 1,173 acres, Share 92, Porcion 68 of Partition Porcion 67, 68, 69, 70, 71, 72, Jurisdiction of Mier, total depth 3,420 feet, drilling.

Aviator Pool—Webb County

O. W. Killam's No. 1 "V" A. M. Bruni, 178 feet east line, 1,180 feet north line, Block 22, Brown Subdivision, Albercas grant, total depth 670 feet, drilling.

Carolina-Texas Pool—Webb County

E. D. Claggett & Sam Evans' No. 1 Webster, 150 feet south line, 990 feet west line, Survey 684, spudded, standing.

W. R. Shankle's No. 2 Webster, 1,170 feet west line, 150 feet south line, Survey 684, rigging up.

Cole Pool—Webb County

French Oil Corp.'s No. 1 Rosa Benavides, 150 feet north line, 150 feet west line, Survey 659, rigging up.

Morris Drilling Co.'s No. 2 S. Benavides, 289 feet northwest line, 150 feet northeast line, Block 431, Mariano Arispe grant, total depth 1,784 feet, preparing to drill deeper from 1,784 feet.

O. W. Killam's No. 18 Bruni, total depth 3,298 feet, drilling, sand 3,004-3,180 feet.

E. H. Buckner's No. "A"-1 Rosa Benavides, 660 feet northwest line, 660 feet northeast line, Cole Petroleum Co. Subdivision, Mariano Arispe grant, Block 5, Survey 14, total depth 1,613 feet, sand 1,609-13 feet, salt water, standing.

Magnolia Petroleum Co.'s No. 2 King-Harper, 660 feet north and east lines, Block 2, Survey 323, location.

Charco Redondo Pool—Zapata County

Mid-West Public Utilities' No. 1 Garza, 450 feet southwest line, 450 feet southeast line of M. P. de Garza tract in the Pedernal grant, rigging up.

W. R. Duke's No. 2 J. M. Martinez, 415 feet southwest line, 500 feet northwest line, Duke Subdivision, Block 22, Charco Redondo grant, total depth 800 feet, drilling.

C. B. Moore & J. M. Moore's No. 1 Adela G. de Flores, 330 feet northwest line, 330 feet northeast line, E. M. Doty Oil & Gas Subdivision, Block 99, Charco Redondo grant, location.

Jennings Pool—Zapata County

A. L. Edgington's No. 3 Trevino, 790 feet east line, 150 feet south line, Block 26, Survey 412, location.

May & Holder and Alamo Drilling & Leasing Co.'s No. 2 Cuellar, 450 feet northeast line, 150 feet northwest line of May & Holder 80-acre tract, Cuellar tract in the Cerrito Blanco grant, derrick.

O. W. Killam's No. 17 Cuellar, 4,423 feet northwest line, 1,942 feet northeast line in the Cerrito Blanco grant, derrick.

O. W. Killam's No. 21 Cuellar, 450 feet northeast line, 4,586 feet northwest line in the Cerrito Blanco grant, total depth 1,919 feet, sand 1,914-19 feet, testing.

H. Muckelroy, Jr.'s No. 3 Trevino, 460 feet south line, 300 feet east line, Block 25, Survey 412, rigging up to drill deeper from 1,281 feet.

Magnolia Petroleum Co.'s No. 3 Cuellar, 150 feet to northeast and southeast lines, Survey 245, total depth 2,276 feet, drilling.

South Texas Production Co.'s No. 9 Measles and others, 3,830 feet southeast line, 660 feet northeast line, Cerrito Blanco grant, total depth 1,756 feet, drilling.

Livingston & Twiss' No. 1 Trevino, 150 feet north line, 150 feet west line, Block 7, Survey 66, total depth 1,250 feet, drilling.

F. M. Blair & F. M. Blair, Jr.'s No. 3 Trevino, 500 feet east line, 150 feet north line, Block 1, Survey 66, location.

R. F. Blankenship's No. 2 Garza, 425 feet west line, 425 feet north line, Block 2, Survey 413, total depth 1,510 feet, drilling.

LA.-ARK. FIELDS

(Continued from Page 46)

port division during the week balanced 29 new jobs begun, eight of the completions being in Carterville and five of these dry, the three producers making only 60 bbls. initial. Of seven new locations three are old wells drilling deeper, two of them by The Texas Company. Arkansas Fuel Oil Co.'s No. 1 Barrett, Section 25-23-12, pumped 25 bbls. from 3,159 feet. Natural Gas Products Co.'s No. 2 United States Government, Section 31-23-11, pumped 25 bbls. from 3,177 feet and Phillips Petroleum Co.'s No. 2 Bolin, Section 30-23-11, pumped 10 bbls. from 3,247 feet after perforating casing 3,113-23 feet.

Bahan & Bahan and Air Lift Oil Co. last week made a 95-bbl. pumper of No. 1 Mays, in Section 26-23-11, at 2,964 feet. With the oil is about 400 bbls. of salt water. The well is the shallowest of the present developments and seems to have found an oil sand where, in the original development of Carterville, there was only gas. Their No. 1 Pleasant, in Section 25-23-12, was a dry hole last week at 3,218 feet. Phillips Petroleum Co.'s No. 3 Bolin, Section 30-23-11, was abandoned at 3,462 feet, one of the deepest tests in the district, and No. 4 on the same 40 acres was dry at 3,180 feet. No. 1 Bollinger in the same section was abandoned as a derrick. The Texas Company's No. 4 J. W. Peyton, Section 30-23-11, was dry and abandoned at 3,200 feet. H. I. Morgan abandoned No. 3 Wetherbee, Section 21-19-11, Bellevue district, at 425 feet and immediately made location for No. 4 on the same lease.

One Caddo Completion

Aside from Falcon Oil Co.'s No. 3 Nunnely, Section 29-20-15, previously reported making 1,000 bbls. from 2,350 feet, there was only one completion in Caddo. Gulf Refining Co.'s No. 25-A Levee Board, in Section 34-21-16, pumping 45 bbls. from 1,836 feet. No. 26-A cemented 6⅝-inch at 1,800 feet and No. 27-A is a location. C. W. Robinson was coring shale at 2,934 feet on No. 1 Wilson, a wildcat in Section 2-15-16 near Spring Ridge in the southwestern part of the parish after a core at 2,920-27 feet in sand and shale had showed a little oil. D. C. Richardson made location in Section 18-19-14, Dixie district, which he opened last summer, for No. 1 Oden.

Lochnager and others' No. 1 Tagliaferro, Section 26-9-6, Catahoula Parish, shut down at 900 feet for the last 18 months, was dropped from the report. National Oil & Gas Co. has taken a block of 17,000 acres centering around Section 20-8-6, Catahoula Parish, for three wells to go to 3,000-3,500 feet, and Pat Matthews has 13,000 acres of a block of 20,000 he is assembling in Township 10, Range8, on which he is to drill two 3,000-foot wells.

Two of four completions in the Monroe gas field had a total open flow of 18,920,000 feet and two out of three in the Richland Field made 60,000,000 feet. Magnolia Petroleum Co.'s No. 8 United States Government, Section 33-21-5, Morehouse Parish, gauged 18,014,000 feet, 1,015 pounds, at 2,363 feet, total depth 2,376 feet. A "second sand" completion, it is the third of a half a dozen or so in that horizon to result successfully.

Greenwood Production Co.'s No. 1 Guinn, in Section 32-21-3, gauged only 920,000 feet of gas from 2,187 feet. No. 2 is a location. Both of the Monroe failures were in Ouachita Parish, United Carbon Co.'s No. 2 Puckett, Section 15-9-5, at 3,010 feet, and Bullock, trustee's No. 1 West Virginia Timber Co., a wildcat, in Section 25-18-5, at 2,700 feet where it shut down on account of high water in January. Later the rig was moved off and shipped to Zwolle but Sam Hunter, who was largely interested in it, had intended until recently to come back and carry out his original idea for a 4,000-4,500-foot test.

Richland Parish

In Richland Parish Palmer Corp.'s No. 7 Rhymes, Section 7-16-6, gauged 27,460,000 feet of gas at 710 pounds from 2,450 feet and Southern Carbon Co.'s No. 1 Hale, in Section 16-16-6, gauged 32,500,000 feet of gas at 2,460 feet. The failure was Southern Carbon Co.'s No. 1 H. Lindow, Section 16-16-6, abandoned at 2,475 feet. Ruston Drilling Co. is blocking 4,000 acres in Township 20, Ranges 6 and 7, Morehouse Parish, between Collinston and Mer Rouge for a 3,000-foot test. Home Oil & Gas Co. is busy leasing in Township 22, Range 6, Morehouse Parish, and Monroe interests are building a 10,000-acre block in Townships 17 and 18, Ranges 2 and 3 west, of Monroe.

Pat Hudson completed No. 1-B Slack, in Section 36-23-11, Webster Parish, pumping 600 bbls. salt water and 20 bbls. oil from 2,741 feet. H. L. Hunt abandoned No. 1 Brown, Section 4-21-11, West Carroll Parish, as a dry hole at 2,914 feet.

Ouachita County, Arkansas, had one completion, Artex Oil Co.'s No. 1 Smith, a wildcat in Section 31-15-17, dry at 3,188 feet. Of Union County's four completions one was a failure in Champagnolle, O. W. Estes' No. 1 Bates, Section 13-17-14, dry at 3,602 feet. E. L. Chapman's No. 1 Epps, Section 3-16-16, Smackover, pumped 15 bbls. from 2,028 feet.

The other two were in the Urbana district, and, while both made large amounts of fluid, they are also good producers of net oil. Marine Oil Co. and Simms Oil Co.'s No. 1 Simmons, Section 10-18-13, was completed at 3,532 feet making 1,400 bbls. of fluid 65 per cent water, or 490 bbls. of oil. Marine Oil Co.'s No. 2-B Winn in the same section was listed as a completion making 5,000 bbls. of fluid from 3,544 feet, but as 10 per cent of the fluid is oil it is a 500-bbl. producer none the less.

Gas Show Reported

Brown-Lee Drilling Co. made a drill stem test at 2,300 feet on No. 1 Whitted, Section 28-4-1, St. Francis County, Arkansas, and was reported to have had a little gas. Cosden Oil Co. was reported to have had an oil show in No. 1 Missouri-Pacific, in Section 13-9-19, Pope County, but confirmation was lacking. Total depth is 3,780 feet, at which the well previously was reported fishing for bailer.

East Texas gas areas had no completions during the week. H. L. Hunt has taken over R. E. Davidson's No. 1 Chapman in the Jackson Grayson Survey of Marion County, which Davidson shut down after testing dry at 2,721 feet, and will drill to an indefinite depth before abandoning it and starting a second test. Shell Rock Petroleum Co. is drilling below 2,475 feet on No. 1 Dougherty in the W. D. Burris Survey of Harrison County, around which location it has a block of 31,000 acres centering 4½ miles east of Hallsville. On the west of this block J. P. Evans has 8,000 acres. Chapparall Oil Co. has revived No. 2 Hall in the Matthew Moore Survey of Shelby County, which had been idle at 3,000 feet for the last 18 months and is reaming to bottom after a drill stem test at 2,746 feet was dry.

H. H. Taylor and associates have a block of 8,000 acres centering around No. 1 Runny, Section 1-13-29, Washington County, Arkansas, and plan a deep test, 3,000 to 3,500 feet. Lion Oil Refining Co.'s No. 1 Ballard, in Section 10-18-13, Urbana district of Union County, cored salt water sand at 4,051 feet, but will go on to 4,500 feet.

CALIFORNIA FIELDS

(Continued from Page 56)

the producing wells at Coalinga are not in very good shape mechanically. It is quite probable therefore that before any repressuring can be undertaken that many wells will require considerable repair work and the installation of high-pressure fittings. The Coalinga Field covers a comparatively large area with a considerable number of wells entirely shut down due to curtailment work. Due to the fact that the back pressures on Kettleman Hills wells average around 1,000 pounds and the high-pressure gas traps are operating at 500 pounds, repressuring at Coalinga could probably be accomplished direct from a high-pressure line in case initial efforts show this project to be feasible.

Santa Fe Springs

The General Petroleum Co. headed the completion list at Santa Fe Springs during the past week by putting three wells on production, one of which was a new well finished for the first time. This was No. 153-F on the Anderson property which was completed doing 832 bbls. daily from 5,960 feet. Nos. 145-E and 207 on the Santa Fe lease were good for 488 bbls. and 50 bbls. per day, respectively, the former being finished in the O'Connell zone at 6,950 feet and the latter in the Clarke sand at 7,870 feet. The Standard finished one well in this field during the week but should have two or three others on production shortly. The Standard's acquisition to its list of producers was No. 11-A Santa Gertrudes, a new well good for 316 bbls. daily from the Clarke sand at 7,910 feet.

The Texas Company recompleted No. 5 Foix after redrilling and deepening it to the Clarke zone at 7,782 feet and this rejuvenated well, which made 2,010 bbls. daily from 7,782 feet, was the largest producer finished during the week. The Ambassador Petroleum Co. also finished a fairly satisfactory completion during the past seven-day period when No. 14 Baker, a new well, was brought in flowing 940 bbls. of 32.3 gravity oil daily from the Clarke zone at 7,850 feet. Preparations are being made to test out No. 4-A Baker of the Wilshire Oil Co., one of two important deep tests under way in the Santa Fe Springs Field at the present time. This project has been bottomed at 8,803 feet with a string of 6⅝-inch landed and cemented at 8,275 feet. It is quite probable that the potentiality of the sand found in this well will be determined within the next 10 days and, while its productivity is merely conjectural at the present time, the chances of getting production appear

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favorable. The Texas Company is also scheduled to test out No. 10-A Patterson, a deep well bottomed at 9,058 feet with a string of 5-inch landed and cemented at 8,280 feet.

Rosecrans

The Barnsdall Oil Co. focused the attention of operators on the Rosecrans Field of Los Angeles basin during the latter part of the week by recompleting No. 13 O'Dea after redrilling and deepening it to the Zins zone at 5,941 feet, from which depth it was returned to production flowing 1,270 bbls. of clean 38.7 gravity oil daily. The importance which attaches to the recompletion of this well is its close proximity to a number of other projects which failed to register substantial production. The Barnsdall, under the competent direction of Vice President Fortine, has experienced unusual success in its drilling operations at Rosecrans during the past several years. The company recently completed a new well on the Trust property which it acquired after another company had drilled three unproductive wells.

The completion of a 1,800-bbl. well and possible discovery of a deeper zone by the Sunset Pacific Oil Co. in the town lot section of the Potrero Field has greatly stimulated interest in the possibilities of this area by deeper drilling. The Sunset Pacific, following its successful completion of No. 3 Inglewood Community at 5,370 feet, has killed No. 2 Inglewood Community, a former small producer at 5,247 feet preparatory to deepening it. George F. Getty is also making preparations to test out this new zone, having taken No. 1 Parker off production a few days ago. This well has been a steady pumper for several months at 3,880 feet and since it is located in close proximity to the Sunset Pacific's recent completion it stands a fair chance of getting satisfactory production. The Pacific Southwest Development Co. has recompleted No. 1 Bergman doing 270 bbls. daily after redrilling and deepening it from 5,290 feet to 5,355 feet.

Long Beach

There were only a few wells finished in the Long Beach Field of Los Angeles basin during the week but a check indicates the probable completion of 10 or 15 more within the next 21 days. The best well finished this week was the Greek American Oil Co.'s No. 1 Signal, a new well, which showed an initial of 780 bbls. daily from 6,770 feet, the hole having been finished with a string of 4¾-inch landed at 6,606 feet. No. 6 Signal of the Meyer Oil Co., another new well finished during the past week, was completed flowing 422 bbls. of 28.6 gravity oil daily from 6,730 feet. This well, with a water shutoff effected by landing a string of 7-inch at 6,569 feet, was finished with a 4¾-inch liner carrying 180 feet of perforated.

Drilling operations in the Playa Del Rey Field of Los Angeles basin have shown a substantial increase during the past month and with a number of additional rigs going up at the present time this district should begin to take on the appearance of an active oil field shortly. The Barnsdall spudded in No. 1 Burke this week simultaneous with the starting of work on the Star Petroleum Co.'s No. 2 Venice. A. T. Jergins also began making hole in his first undertaking in this field, located within a stone's throw of the ocean. Several wells were put on production in the Huntington Beach Field this week but all of them were of minor consequence. The Richfield Oil Co. successfully finished No. 1 Heaston, a new well, pumping 20 bbls. per day from 3,746 feet, and concluded drilling operations on No. 2 Dieter Golay, which is in the oil sand at 3,645 feet. The Rex Oil Co. put No. 15 Dabney on a production test several days ago at 4,650 feet but it was only good for 25 bbls. of 20.6 gravity oil cutting 30 per cent. V. R. G. Wilbur's No. 1 Dabney, a former upper zone producer, was recompleted pumping 42 bbls. daily upon recompletion at 2,985 feet.

Ventura Avenue

There has been a marked reduction in drilling operations at Ventura Avenue during the past several months due to a commendable spirit of co-operation between the Associated and Shell Oil companies, and, while several wells are scheduled to be spudded in during the next month, this additional work is due to lease requirements and the desire to maintain a consistent development program without increasing actual production. The Shell Oil Corp. listed two new wells for completion on the Taylor lease this week, and, while both of them were given preliminary production tests a week or so ago, actual completion was retarded in order to eliminate any possibility of disrupting the present curtailment program in effect in this field. It might be mentioned in passing that the Shell brought these wells into completion slowly in order to effect a comparable reduction in the production of settled producers. The new wells listed were Nos. 46 and 54, the former being finished in the deep zone at 7,136 feet and the latter at the unusually shallow depth of 4,099 feet. Both wells were severely pinched back by the use of seven-sixteenths inch beans. No. 46 is flowing 521 bbls. of clean 32.1 gravity oil, while No. 54 is doing 1,070 bbls. of 32.6 gravity oil daily. The former is flowing under a pressure of 430 pounds on the tubing and 1,150 pounds on the casing, while gauges on the latter show 455 pounds on the tubing and 1,100 pounds on the casing. The largest producer finished during the past week was No. 97 Lloyd of the Associated Oil Co., a new well which came in under a natural flow doing 5,180 bbls. of clean 29.3 gravity oil and 5,034,000 feet of natural gas daily from 7,193 feet. This well will be permitted to flow for a period of five days in conformity with the crude oil curtailment program, at the end of which it will be cut back 43 per cent. There are several additional wells rotating ahead in the oil sand in this field at the present time which should be listed for early completion, and, while this would ordinarily result in a substantial increase in field production, operators in this district do not anticipate any such condition as it has been the practice to reduce settled production sufficiently to offset the output of new wells wherever possible.

Midway-Sunset

The Hancock Oil Co. added a new well to its list of producers in the Maricopa Flats section of the Midway-Sunset Field during the past week when No. 4 in Section 8-11-23 was brought in flowing 906 bbls. of 22.1 gravity oil daily from 3,031 feet, the water shutoff having been effected by a string of 8⅝-inch landed and cemented at 2,931 feet. The Barnsdall Oil Co. also chalked up a new completion when No. 3 Hazelton was brought in flowing 698 bbls. of clean 17.4 gravity pipe line oil daily from 3,152 feet. This is the third successful completion to be finished by the Barnsdall on this lease within a relatively short time. There are several additional wells scheduled for completion in this section of the field during the next several weeks but it is not likely, however, that this new production will unduly disturb the present equilibrium of the field. The period of flush production is just about over in this area, and, while new wells will probably continue to register large flush production upon completion, the flowing period will be relatively short. Wells in this section of the field show an unusually rapid decline following completion and this, together with a troublesome sand condition, mitigates against the development of unusually large consistent production.

The Standard, which has not been able to develop correspondingly large production in Sections 5 and 9-11-23, is starting two new wells but neither of them is expected to show substantial production due to unfavorable geological conditions. The Standard's last completion in Section 9-11-23 was No. 10, which was only good for 120 bbls. daily from 3,612 feet. The small initial shown by the Standard's wells in these two sections is especially marked, particularly in view of the fact that producing wells located only a few hundred feet west have almost invariably registered substantial production. This is a peculiarity of the field, however, and is not attributed to inefficient drilling. It is a toss-up between several companies as to which will finish the next well at Maricopa Flats as this may be either No. 5 Havenstrite of the Rio Grande, No. 3 Sunset of the Wellington Oil Co. or any of several other projects rotating ahead in the pay at present. The Shell Oil Corp. added a new well to its list of producers in the Round Mountain Field of Kern County this week when well No. 11 on Jewett No. 2 was brought in pumping 140 bbls. of 19.1 gravity oil per day from 1,651 feet.

Rincon

The General Petroleum Corp., a subsidiary of the Standard Oil Co. of New York, extended the proven limits of the Rincon Field of Ventura County into the open ocean for a distance of 1,700 feet this week by recompleting No. 2 Ferguson doing 1,210 bbls. of clean 28.1 gravity oil daily from 3,455 feet. This is the second zone to be found productive in this well by the General Petroleum. Several months ago No. 2 Ferguson blew in during the course of a water test flowing 700 bbls. daily from 3,110 feet but it was subsequently killed and drilling resumed. It is the present intention of the General Petroleum Corp. to permit this well to remain on production in order to determine the advisability of undertaking additional development before going ahead, as tideland drilling is too costly to take any chance. Permission, however, has already been secured from the War Department to extend the Ferguson pier 600 feet west in order to develop Neil Needham's tideland permit No. 55, which adjoins the General Petroleum's Ferguson tideland permit No. 48 on the west, and the first test on this permit will be drilled regardless of the outcome of No. 2 Ferguson. The Richfield Oil Co. is making preparations to initiate similar tideland development on Hobson tideland permit No. 52, which adjoins the General Petroleum's Ferguson permit on the east, and it is quite likely that the General Petroleum may find it necessary to offset the Richfield's new project especially if No. 2 Ferguson shows consistent production. The Seacliff Development Co., a subsidiary of the Honolulu Consolidated, has already started constructing an 1,800-foot pier to initiate tideland development on permit No. 56, which adjoins both the General Petroleum's Ferguson permit No. 48 and Neil Needham's permit No. 55.

Elwood

The Elwood Field of Santa Barbara County is rapidly becoming an important factor in state production due to the recent completion of several prolific wells and the output of this field is destined to go considerably higher because of additional projected completions unless operators take drastic steps to retard production. During the past week the Elwood Exploration Co., a subsidiary of the Honolulu Consolidated, finished well No. 2 on tideland permit No. 90 flowing 3,425 bbls. of clean 38.2 gravity oil daily from 3,495 feet. This is the second well to be finished on tideland permit No. 90 and piles are being driven for two more, Nos. 3 and 4. The Barnsdall and Rio Grande, jointly developing several leases in this field, recently finished No. 2 on tideland permit No. 88 flowing 10,163 bbls. daily and are scheduled to complete No. 6 Doty at 3,603 feet within the next few days, as the time limit on this well fixed by the curtailment agreement expires May 1. The Pacific Western is scheduled to complete No. 3 Blue Goose within the next three weeks and this project will probably be followed into completion by well No. 3 on tideland permit No. 92, on which the company is drilling at the present time.

A few miles east of the Elwood Field, the Bolsa Chica has just completed a 900-foot pier out into the ocean and is starting rig construction for a tideland well to be drilled at Coal Oil Point in Section 24-4-29. Before the derrick for this project can be erected, however, it will be necessary to construct several concrete caissons and complete other preliminary foundation work. Construction work has already started on the drill head and cement forms for these foundations should be completed within the next two weeks. There is a general misconception on the part of many operators that the Bolsa Chica is attempting to extend the proven limits of the Elwood Field and in order to clarify this situation it would not be amiss to call attention to the fact that the Bolsa Chica is pioneering a new separate independent structure. If this wildcat exploration proves successful, the Bolsa Chica will control the potential structure at Coal Oil Point in its entirety. In order to test out this structure, the company is completing elaborate preparations which all together will cost around $200,000. At the end of the 900-foot pier, extending out into the ocean at right angles from the shore line, the company has constructed a working platform measuring 84'x132'. It is interesting to note in this connection that this drill head is considerably larger than the average size lot found in subdivided areas such as Playa Del Rey, Santa Fe Springs, Potrero and other town lot areas.

ROCKY MOUNTAIN AREA

(Continued from Page 53)

Benton and the Muddy sand was expected at 5,200 to 5,300 feet. The hole has been making considerable gas for some time and the gas continues at this depth.

Arapahoe County

The McDeb Drilling Co.'s No. 1 Fitzsimmons, NE, Section 7-4s-66, is drilling at 5,245 feet and carrying the 6¼-inch at 5,228 feet. It is believed to be near the base of the Niobrara shale. H. Brown Cannon and others' No. 1 Shaffer, NE SE, Section 21-4s-67, is fishing for drill stem at 750 feet. This is the depth at which the doodlebug said oil would be found. At that depth it encountered a hard sandstone formation which is believed to be the cap over a sand. It is being drilled with a small rotary outfit and is powered by a Dodge automobile motor mounted on a truck. The hard formation caused the drill stem to twist off. Under the caprock it is expected that either oil or water will be found and that the tale will be told.

Bent County

The Continental Oil Co.'s No. 1 Pipe Springs, NE SE, Section 27-27-49, is drilling at 5,880 feet in hard gray lime. It has been in this formation for the past 400 feet.

Huerfano County

Sporleder & Elliott's No. 1 Abeyta, SW cor. NW, Section 31-27-65, Cuchara Dome, was abandoned at a total depth of 2,237 feet. No oil or gas was encountered. The last contract provided for carrying the hole down to the Sundance. There were water sands at 420-24, 487-92 and 955-60 feet. Lower sands were dry.

Dolores County

Crew has returned to location to resume drilling on the Transcontinental Oil Co.'s No. 1 Glade, C NW, Section 30-41-16, which was shut down for the winter at 5,900 feet. This well started 200 feet below the Dakota. At 3,802 feet it was in the Cutler formation above the upper Hermosa. This well has an altitude of close to 9,000 feet and is believed to hold the record.

Fremont County

The Continental Oil Co.'s No. 4 San Isabel, NW SW, Section 22-20-69, is drilling at 660 feet.

Mesa County

The Argo Oil Co.'s No. 1 Hoel, NE cor., Section 23-8s-104, High Line, is bottomed at 2,930 feet and underreaming the 6¼-inch to 2,900 feet. A dry sand was cut at 2,800-40 feet and samples are being analyzed to determine if this was the Dakota.

Rio Blanco County

The White Eagle Oil & Refining Co.'s No. 1-A Fordham, NW SW, Section 9-2s-96, Piceance Creek, is drilling in shale at 3,624 feet with the 6¼-inch at 3,350 feet. There is a considerable volume of very wet gas coming up through the 6¼-inch, this being new gas. The Texas

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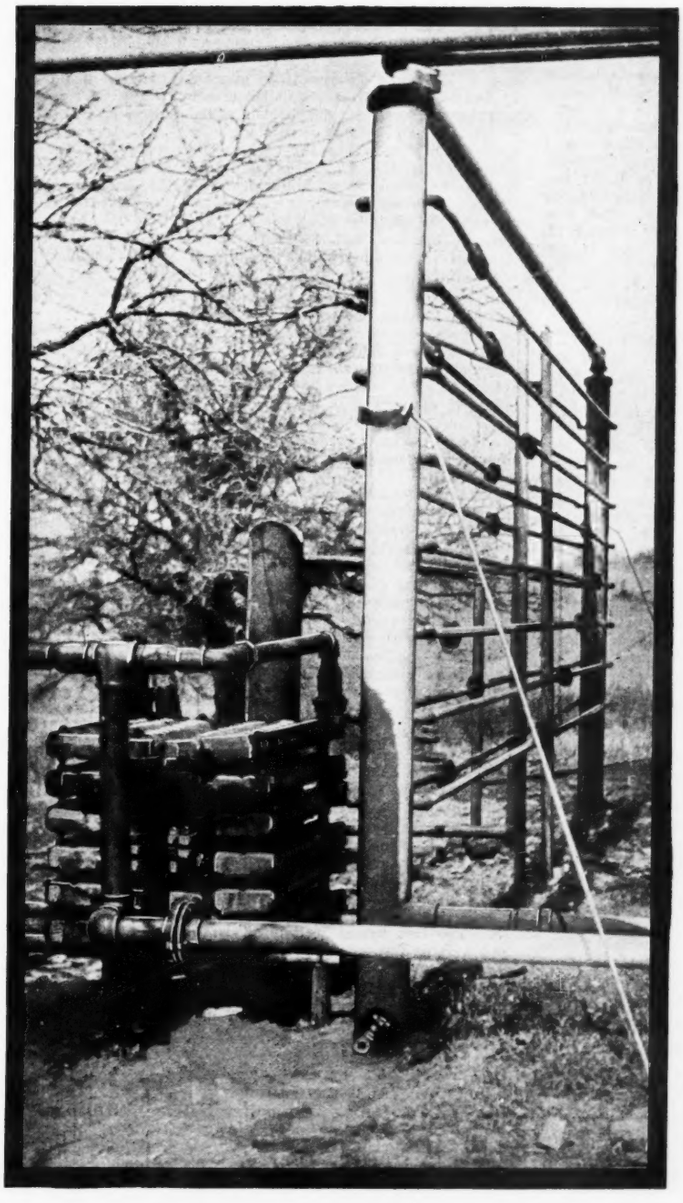

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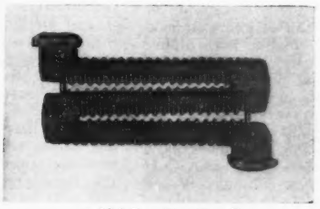

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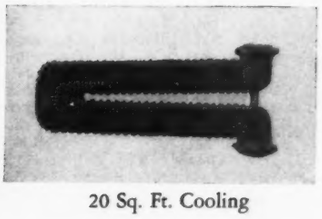

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Production Co.'s No. 1 Potter, NE SW, Section 30-2n-96, White River, is fishing for drill stem at a total depth of 5,984 feet.

Routt County

An accident occurred in the Tow Creek Field this week when William E. Palen, 52 years old, a drilling contractor, fell from the derrick of the Texas Production Co.'s No. 3 Quaintance-Hocking, NW NE, Section 18-6n-86. He subsequently died of his injuries. Casing was being pulled to abandon. The well was completed as a producer in 1927.

Moffat County

The Midwest Refining Co.'s No. 24 Hannewalt, SE, Section 4-6n-92, Bell Rock Dome, is drilling at 2,370 feet in brown shale with 2,000 feet of water in the hole. Same company's No. 19-SD Parkinson, SW NE, Section 22-4n-92, Iles Dome, is drilling at 2,964 feet in white and gray sand, one of the Dakota series, and flowing water over the top. The Texas Production Co.'s No. 1 Berlin, SW NE, Section 19-12n-100, Bartram Dome, is making new hole for the first time in the past two months and is drilling at 2,380 feet. This is the discovery well which so far has cut four sands, making an aggregate of 72,000,000 feet of gas per day. The Mountain Fuel Supply Co.'s No. 1 Lasher, NE NE, Section 25-12-101, is drilling at 2,570 feet. It has cut three thin sands making 3,000,000 feet of gas per day and is going deeper after bigger production.

WYOMING

Park County

Charles E. Orchard's No. 7 Rue, SW cor. NW, Section 28-51-100, on the south dome of the Oregon Basin structure, found the pay in the Embar at 3,572-90 feet and was completed at 3,590 feet with an initial production of 108 bbls. The Big Horn Petroleum Co.'s No. 2 Hoodoo, NE cor., Section 36-51-101, on the west side of the south dome, was dry and abandoned at a total depth of 4,450 feet. It topped the Tensleep at 4,340 feet and went through that formation. The Wyoming Western Oil Co.'s No. 3 Hough, SE cor., Section 18-51-100, which was reported abandoned at a total depth of 4,758 feet, is being drilled deeper and is making hole at 4,795 feet. This well is located to the west of the saddle between the north and south domes and is the deepest so far drilled on the structure. It topped the Madison lime at 4,585 feet and was making 3,000 bbls. per day of hot sulphur water at 4,753-58 feet. The location of this well is such that failure to find oil in the Madison does not condemn that formation higher on the structure. The California-Wyoming Oil Co.'s No. 1 Null, Section 26-51-100, was completed as a validation hole at 500 feet. The Cody Petroleum Co.'s No. 7 Klindt, NW NE NE, Section 7-51-100, is an abandoned location, nearby wells showing it to be off structure. The Texas Production Co.'s No. 1 Freeman, C NW SE, Section 30-51-100, is moving in rotary rig. The Oneida Oil Co.'s No. 1 Beck, SW cor., Section 28-52-100, is drilling at 2,870 feet, and the Lenco Petroleum Co.'s No. 2 Rousseau, SE NW, Section 33-51-100, is drilling at 3,475 feet.

The Laurel Oil & Refining Co.'s new refinery at Laurel, Mont., which is being put into operation to run on Oregon Basin crude, has sold its entire year's output before making the first gallon of gasoline and plans are under way to increase its capacity.

On the Frannie Dome in Park County, the Midwest Refining Co.'s No. 31 Frannie Oil, SW cor. NE, Section 25-58-98, is sidetracking bit at a total depth of 1,635 feet, and its No. 31 Rosenberg, SW cor. SE, Section 24-58-98, is drilling at 1,135 feet in black shale which is caving badly. The Producers & Refiners Corp.'s No. 2, NW NE, Section 14-48-102, Pitchfork Dome, joint with the California Exploration Co., is again operating after the winter shutdown and is drilling at 2,081 feet with the 8¼-inch at 2,074 feet.

Hot Springs County

The Ohio Oil Co.'s No. 1 Smith, SE cor. NE, Section 9-46-99, Walker Dome, on Enos Creek, 3 miles west of Grass Creek, is drilling at 4,340 feet with a hole full of water. The water probably is coming from a sand in the Dakota formation. The Midwest Refining Co.'s No. 8 Weeks, NW SE, Section 6-44-98, Wagonhound, is cleaning out at a total depth of 1,540 feet.

Big Horn County

The Ohio Oil Co.'s No. 1 Union Gas, NE cor., Section 22-56-97, Byron Dome, cemented the 6⅝-inch casing at 5,286 feet on top of the Embar.

Natrona County

The Midwest Refining Co.'s No. 29-DT, NW, Section 35-40-79, Salt Creek, is bottomed at 4,320 feet and pumping in mud preliminary to cementing the 8⅝-inch casing. The next objective is the Madison lime and it was planned to set the casing just above that horizon. The Casper Producing Co. is moving in for its No. 1 State, Section 36-36-81, Segment Basin Dome, 4 miles southeast of the producers on the North Casper Creek Dome.

Fremont County

The Kinney-Coastal Oil Co.'s No. 1 Dykeman, SE SW, Section 22-3n-1w, Pilot Butte, is bottomed at 3,630 feet on top of the Dakota and underreaming the 6¼-inch at 3,610 feet. The Producers & Refiners' No. 10, Section 14-32-95, Sand Draw, is drilling at 690 feet, and the Texas Production Co.'s No. 1 State, SW SW, Section 36-34-95, Alkali Butte, is bottomed at 3,248 feet and pulling the 8⅝-inch casing.

Carbon County

The Producer & Refiners' No. 2 Mahoney Dome, SE NW, Section 34-26-88, the Tensleep test, has been plugged back from a total depth of 4,760 feet to 4,702 feet and cemented. The 6¼-inch is at 4,595 feet. It swabbed 75 bbls. a day in a test of the Tensleep at 4,600-83 feet and deeper drilling did not indicate any increase. The Midwest Refining Co.'s No. 31 Eades, SW cor. SE, Section 1-18-78, Dutton Creek, is drilling at 3,700 feet in black and gray shale, and the Producers & Refiners' No. 2 O'Brien Springs, Section 11-24-88, recemented at 436 feet. The Red Feather Oil Co.'s No. 1, SW SW, Section 35-13-92, Baggs structure, is resuming at 2,300 feet after the winter shutdown.

Lincoln County

Miller Robert Taylor, vice president of the Mountain Oil Corp., returned to southwestern Wyoming for the resumption of drilling on that company's No. 1 State, NE cor., Section 36-25½-115, Wyoming structure. The location is 215 feet from the north line and 263 feet from the east line. The well is spudding at 285 feet in the top of the Thaynes limestone formation. This is one of the major group development operations approved a few months ago by the Secretary of the Interior and the test will be of more than ordinary interest. The major companies holding acreage on the structure are the Mountain Fuel Supply Co., the Texas Production Co., the California Co., the Midwest Refining Co., the Utah Oil Refining Co., the Transcontinental Oil Co. and the Arkansas Fuel Oil Co. The Utah Oil Refining Co. has purchased an option to purchase the production from certain of the lands on the structure.

Sublet County

The California Petroleum Co.'s No. 8-L, Section 34-27-113, La Barge Field, the first well drilled following the winter shutdown, was completed at 827 feet with an initial production of 35 bbls. Same company's No. 3-L, same section, is spudding.

Uinta County

The California Co.'s No. 1 Union Pacific, NE NW, Section 7-17-116, Muddy Creek, is drilling at 4,810 feet.

Sweetwater County

The Prairie Oil & Gas Co.'s No. 75-A, Section 11-26-90, Little Lost Soldier, the deep test, is drilling at 2,710 feet in the red beds, and the Mountain Fuel Supply Co.'s No. 1 Sullivan, SW SW, Section 10-16-104, South Baxter Basin, is redrilling at 3,635 feet. Total depth is 3,445 feet.

NEW MEXICO

The first important contract for oil from the Hobbs Pool in Lea County, New Mexico, to be announced is that of the Atlantic Oil Producing Co., subsidiary of the Atlantic Refining Co., for 3,000,000 bbls. from the Amerada Petroleum Corp., deliveries to be at the rate of 7,500 bbls. a day. The Amerada company has not yet completed any producing wells in the Hobbs area, but is drilling two wells in Section 30-18-38, one of which is only half a mile from the Humble Oil & Refining Co.'s No. 1 Bowers, NE cor. SE, Section 30-18-28, which made 2,149 bbls. in six hours, and the other is less than a mile from the big well. Both are considered certain shots for production. The Amerada company also has some acreage between the No. 1 Bowers and the producers to the southeast which is considered proven territory. The Atlantic company is reported to have purchased the surface rights on the northwest quarter of Section 22-19-38 and the southwest quarter of Section 15-19-38 for a tank farm and will have one of its 55,000-bbl. tanks completed early in May to begin taking crude. The 8-inch pipe line which the Atlantic Pipe Line Co. is to build into the Hobbs Pool from Midland, Tex., through Andrews County, is expected to be ready to begin running oil early in June. This line will tie in with the Atlantic's 10-inch line from Midland to the Gulf Coast.

The towns of Hobbs and New Hobbs had their inning on April 19 when the first train was operated into the district by the Texas & New Mexico Railroad, a branch of the Texas & Pacific Railroad. This line starts at Monahan, Tex., where it connects with a branch to the main line, and runs north through eastern Lea County towards Lovington, its objective. A crowd of 8,000 people witnessed the event. State officials, with Gov. R. C. Dillon at the throttle, operated the train. A two-day celebration was staged and included a rodeo exhibition, a fight between a dog and a wolf and between a dog and a wildcat. There was the customary speech-making in which was emphasized the importance of the development. The building of this railroad resulted from the oil development in Lea County and the oil operators are especially benefited by its coming as it goes through the principal fields of activity.

Hobbs Area—Lea County

The Humble Oil & Refining Co., which will have an outlet for its oil as soon as the Humble Pipe Line Co.'s extension into the Hobbs Pool from the south is completed, made another location this week for its No. 4 Bowers, SE cor., Section 30-18-38, three-eighths of a mile south of its No. 1 Bowers, the big producer, and an offset on the west to its No. 3 Bowers, SW cor., Section 29-18-38. The last named well is rigged up and waiting for orders. The Gypsy Oil Co.'s No. 1 Grimes, NW cor., Section 32-18-38, another offset, has rig up. These wells were spotted 330 feet each way from the section lines. These make three operations for the Humble company, all close in to its big well where large production may be expected and the first for the Gypsy company. The Sun Oil Co.'s No. 1 McKinley, a 330-foot location in the NE cor., Section 5-19-38, has been revived and will be drilled. It was spotted last October, but nothing further was done at the time. While the celebration of the coming of the new railroad was in progress, the Shell Petroleum Corp. added to the excitement by encountering oil in its No. 1 State, SE SW NE, Section 32-18-38. It found the pay at 3,136-44 feet in sand and it tested 279 bbls. in 18 hours. The oil tested 39° gravity. The well also is making around 3,000,000 feet of gas from 2,767 feet. It will be drilled deeper as it has not yet reached the horizon in which the Humble's No. 1 Bowers found the big pay. The Shell well topped the brown lime at 2,753 feet and the elevation is 3,637 feet. It is located 1¼ miles to the southeast of No. 1 Bowers and approximately the same distance northwest of the producers farther to the southeast. It is running about 46 feet higher, based on the bottom of the salt, than No. 1 Bowers. The Ohio Oil Co.'s No. 1 State-Northrup, NE NW SE, Section 32-18-38, an offset on the south to the Shell well, also is showing up favorably. It cemented the 10-inch at 2,772 feet and is bottomed in hard sand at 2,833 feet. It had approximately 2,000,000 feet of gas per day at 2,772 and 2,835 feet. Rotary drill is being installed to replace cable tools. The Ohio's No. 1 State, NE cor. SW, Section 30-18-38, half a mile west of No. 1 Bowers, is spudding. It is being offset on the east by Humble's No. 2 Bowers and on the north by Amerada's No. 2 McKinley. The Empire Gas & Fuel Co. became active in the Hobbs area this week for the first time when it spotted its No. 1 Fowler, NE cor., Section 31-18-38, a 330-foot location. It is digging cellar. It is half a mile south of No. 1 Bowers. The Midwest Refining Co.'s No. 36 State, SE cor. SW, Section 10-19-38, spudded to 110 feet and stopped to run the 16-inch for a water shutoff. The same company's No. 1 State, NE cor. NW, Section 15-19-38, has rig material on the ground and its No. 13 State, SE NE NW, Section 15-19-38, has rig up. The Midwest's No. 33 Byers, SE SW NE, Section 4-19-38, is spudding at 145 feet with the 16-inch at 127 feet. Landreth Production Co.'s No. 1 State, NW cor. SE, Section 7-18-38, is rigging up. Cecil Bordadges and others' No. 1 Hughes, C S half, Section 27-19-38, which has been bottomed at 4,012 feet for a year, is idle and the contractor is moving off tools. Fisher & Lowrie's No. 1 State, NE cor. NW, Section 11-18-36, west of the Hobbs Pool, is bottomed at 4,700 feet and killing gas to drill deeper. It had about 250,000 feet a day at 4,695 feet. The gas is both sweet and wet. The Texas Production Co. has made a location for its No. 1-C State, NE cor., Section 25-18-37, where four offsets are to be drilled.

Cooper Area—Lea County

Cranfill & Reynolds' No. 1-C State, SW SE SW, Section 16-23-36, is drilling at 3,776 feet in lime and is averaging 100 bbls. of oil and 8,000,000 feet of gas per day. The gas showed an increase at 3,720-45 feet. It is preparing to drill deeper. This well is half a mile northeast of the Texas & Pacific's No. 3 State which made 1,687 bbls. initial and is apparently not showing up as favorably though it promises to be a good producer. The Texas & Pacific's No. 4 State, NW NE NW, Section 21-23-36, an offset on the south, is drilling at 3,205 feet in lime. It bottomed the salt at 3,125 feet and topped the brown lime at 3,155 feet. It is running about 120 feet lower than No. 3 State.

Eunice Area—Lea County

The Empire Gas & Fuel Co.'s No. 1 Closson, NE NW SE, Section 6-22-36, is drilling at 4,027 feet in lime and averaging 145 bbls. of fluid per day of which 16 per cent is mud and water. The water was encountered at 3,975 feet.

Tatum Area—Lea County

A. D. Morton and others' No. 1 State, C NW, Section 32-11-38, is drilling at 4,670 feet in lime and had a show of salt water at 3,635 feet.

UTAH

Two tests in Utah report progress during the week. The Midwest Refining Co.'s No. 31 Pary, SW SE, Section 14-39-1w, Kane County, for the account of the Utah Oil Refining Co., is bottomed at 3,365 feet in hard red sandy shale and running the 10¾-inch at 2,741 feet. The Utah Southern Oil Co.'s No. 1 State, SW SE, Section 26-21-23, Grand County, is drilling at 1,650 feet in sandy shale.

MONTANA

The Border Field is showing much activity as the weather warms up along the international boundary. Fifteen derricks are now standing in the field and 11 of these are either drilling or will shortly start spudding. No well was completed the past week but several

(Continued on Page 140)

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Chicago Jobbers Interested in Late May

Many Have Enough Gasoline to Supply Them for Next Three Weeks. Offer of Low Prices for Immediate Business Fails

By J. B. Waldo

CHICAGO, Apr. 28.—With only two more days in April owners of gasoline bought for delivery during this month have grown more anxious to secure orders and have quoted some low prices for immediate business without securing many orders so far as the trade is well supplied. The jobbers are more interested right now in the latter part of next month, many stating they have enough gasoline provided for to carry them for the next three weeks. The consumption over the week end was fair but not what it would have been if the weather had not been so cloudy, the weather bureau report showing that a large part of the country east of the Rocky Mountains was covered by clouds although few points showed any actual rainfall. The major refiners continued to name 7½ cents Group 3 as their spot price while other sources of supply were quoting 7¼ cents for prompt shipments. Several refiners offered U. S. Motor gasoline over May at 7¼ cents. Distress gasoline was offered by resellers as low as 6⅞ cents stated to be full motor specifications while off grade material was freely offered by many sellers at 6½ to 6¾ cents to the jobbing trade. The number of inquiries in the market for gasoline on Monday were few. Contract shipments and shipping instructions for next month were reported to be on a liberal scale, jobbers evidently intending to keep their tanks well filled. A report was received from the group that exporters had inquiries out for a considerable quantity of U. S. Motor gasoline and the amount of the orders which would be placed would not be determined for a day or so but that it would be for a material amount and should give the market added strength.

There was some kerosene business in the market on Monday but no change in prices was made. Most of the leading refiners are quoting 4½ cents with occasional prices named of 4⅜ cents.

There was very little doing in furnace oils. Distillate was offered in any quantity from a car to a train load at 3 cents. The situation in straightrun gas oil seemed to be a little more firm, refiners quoting 2½ cents and several reporting that they had nothing to offer. There are several gas company contracts being worked over now but the buyers seem in no hurry to close the deal. There was only a limited inquiry for industrial fuel oil and prices were unchanged although large orders would be given some concessions if actually placed.

Gasoline Stocks Large

The trade in this market believes that stocks of gasoline in jobbers' and dealers' storage are much larger than a year ago. The trade, large and small, has been buying and storing to the extent of its ability, financial and physical. During the last month some of the storing has been involuntary. One large distributor with a refinery connection stated that four weeks ago the gasoline movement had got to going well and that they had increased their orders to care for the expected demand. Then came the snow storm and blizzard, followed by heavy rains, resulting in reduced gasoline movement. Salesmen on the road report that nearly every jobber has a large stock of gasoline. The major refiners say their contract shipments are excellent and comment on the evident willingness of their trade to carry full stocks. Of course all this buying in advance of actual sales, has been based on the belief that there would be higher prices later in the season and the result is that jobbers are carrying stocks of gasoline on which they hope that they will reap a substantial profit.

Some of the best established of the gasoline buyers took advantage of conditions last week, to add to their stocks of gasoline. Some had bought more gasoline for April delivery than they could take in or find a place for regularly and they were active seekers for customers in order to close out their purchases before the end of the month, when the advantage would be for the moment at least, entirely with the buyer. But owing to the well-stocked condition of the average jobber, gasoline was slow to move and locally at least, a weak tone developed in this market.

The situation was intensified by the fact that many tank car dealers and some of the local distributors owned gasoline that has the initial and endpoint of the U. S. Motor grade but does not meet full specifications on the intermediate distillation tests and at times has an odor all its own. It is commonly sold at about a quarter of a cent below the market for the full grade and apparently had been freely bought with the expectation that the demand would be sufficiently active to enable its owners to sell it at a profit. One small buyer stated that he was called six times in one morning by dealers who wanted to sell him this grade of gasoline at prices ranging from 6½ to 6¾ cents. The gasoline is not first class material, but so long as it finds buyers it increases the available supply.

Prices Unsettled

Prices have been unsettled by the condition described and the lack of active demand in the spot market. The major refiners are still holding firmly to their price of 7½ cents, Group 3, for U. S. Motor gasoline. They all say their spot sales are small. The reason was obvious last week. U. S. Motor gasoline could be bought readily for 7⅛ cents for spot shipment in Group 3, and distress gasoline frequently was purchased from local marketers at even less costs. The 60-62 400 endpoint was sold at 7 cents on some occasions to spot buyers some of the quotations being made by Tulsa brokers. Others quoted 7¼ cents for the 60-62 400 endpoint and the same price for the 60-Navy grade. The higher cost of natural gasoline is advancing quotations on blended gasoline. There was little movement in the 64-66 375 grade and prices were rather easy. It seems most probable that these conditions will prevail locally at least for a few days longer as the owners of April gasoline have practically until May 3 or 4 to work off their purchases.

Refiners are showing reluctance to quote for May deliveries, yet some quotations are being made and at figures that do not suggest great enthusiasm regarding the outlook. One buyer wrote to more than a score of refiners stating his May requirements as nearly as he could judge and asking their prices. Not one, he states, made a direct reply quoting prices for all of the chief items on his list. Some quoted on a single item or offered something a little different from the material on which a price was asked. Over one-half the refiners receiving this letter replied by asking what price the proposed buyer would pay.

At the beginning of last week, a common view of the price situation for U. S. Motor, Group 3, was 7⅛ cents for April shipments, 7¼ cents for the first part of May and 7½ cents for the whole of May. These prices were still generally named all of the week, but several sources of supply, one a Tulsa broker, quoted large independent jobbers as low as 7 cents for April and 7¼ cents for the entire month of May. These low prices were the exception and did not indicate the real market.

Conditions are improving now and the consumption over May bids fair to show a healthy gain over April and last May. At the close of April the daylight saving schedule goes into effect in many parts of the country adding another hour to the time favorable for motoring.

Better Kerosene Demand

Kerosene is doing a little better as to demand. During the rainy weather buyers of kerosene in the country districts held up their shipments but now that the weather is improved and the fields drying out nicely they are coming back for their delayed shipments. The demand has livened and the market is firm although prices remain unchanged in this market at 4⅜ cents for the low with many refiners asking their jobbing customers 4½ cents and some sales going through at 4⅝ cents. The season it is expected will hold over for a short time in May, as work has been delayed but the farmers will work night and day to get their fields plowed and seeded.

There has been a little call for furnace oils in car lots but the season is so near its end that the buying is reluctant as the distributors feel that warm weather may come to stay almost any time and the consumption will drop to nothing at all over night. The season in furnace oils has been fair with some but as a rule there is great complaint regarding both the troubles incident to the business and the profits realized. Yet any attempt to raise prices meets with some resistance that seems to make remunerative prices impossible. It is not alone the keen competition both within and without the industry, but the fact that some of the larger distributors seem to be able to do business at prices which are not remunerative to the others.

The furnace oil business is no more competitive than the gasoline business, yet the gasoline distributors seem to make money while the furnace oil branch of the business is not generally credited with being a profit maker. One reason is that the distributor of both favors his gasoline trade and uses the furnace oil department as a means of keeping his organization together and utilizing equipment in the off gasoline season rather than striving for a profit. Some of the distributors have made money in the past, but never has the return been really adequate. The demand is so limited and the sales so small individually, that it is difficult to determine the actual market. Some sellers are holding for 3 cents for a good straw distillate while a darker grade can be had for 2¾ cents. Some are asking a quarter of a cent higher and others will pretty nearly let the buyer write his own ticket, if they have the oil to sell.

Zero Gas Oils Easy

Zero gas oils are also rather easy but there has been little change in prices. Inquiries have been received from country distributors regarding the coming season. Some have expressed their desire to have a contract, desiring it as a basis for their own contracts with their customers for next season. It has been found practical to renew old contracts for another year at this time when the consumer is still in close touch with his source of supply.

Straightrun gas oil has been easy in tone and some offers at prices which are just about in line with the market have rather strengthened than weakened the situation. It will not be long now, if the demand for gasoline shows the expected development, before the buying of straight reduced gas oil will begin on a larger scale and perhaps more than replace the decrease in the demand from the gas companies. These latter are not buying largely as a rule and are placing their orders carefully. Some of the buyers will occasionally give an order for storage but the price has to be reasonable. Some of the refiners are offering their product direct at 2½ cents but three-eighths can be had by quantity buyers.

The demand for industrial fuel oil is moderate to fair, showing little change. Some of the steel plants which are currently reported to be doing an 80 per cent of capacity business, are according to executives really doing about 50 per cent and their purchases of fuel oil indicate that this is about correct.

The fuel oil market would not feel any great result from this industrial condition were it not for excessive competition. The stocks of fuel oil have been steadily declining according to the Bureau of Mines. A large part of the stocks that are reported consist of heavy, cracked fuel oil which can be used by only a limited number of industrial plants. If the present conditions continue the supply of the lighter gravities, that is around 18-22 gravity will decrease rather than increase.

Must Look to Gasoline for Profits

From the present outlook, for the next six months, the refiner will have to derive his profits from gasoline and either crack or sell at the market, his fuel oil. The Chicago market is far from strong. It is not in a healty condition. There are too many seeking the business that is to be had. The result is that a good 18-22 fuel oil was quoted last week by more than one seller to several buyers at 55 cents a barrel, Group 3. Commonly a price of 57½ cents was quoted and from that up to 60 cents under special conditions or for extra quality. There was little activity in any lighter gravity than an 18-22 oil. The new Empire refinery at East Chicago, has straight reduced fuel oil with excellent specifications, gravity 20-22, cold test 25° F., sulphur three-fourths of 1 per cent, viscosity 600 at 100°. It has quoted this product to the trade here at 60 cents in one or more cars up to five, and a larger number of cars at 57½ cents per barrel. The trouble is the quotations made of lower prices and the little demand outside of contracts in the class of buyers to which the oil has been offered.

There is some activity in contracts as many of the present contracts expire either June 1 or 30. There is also demand for contracts from distributors for next season. The Shell Petroleum Corp. put an offer to contract on the basis of the average published prices with a maximum or minimum. On the grades above the 18-22 gravity the offer was made to include marketers, allowing them 2½ cents a barrel. After a few days notice was given that the company was sold up on its 18-22 gravity fuel oil and that no more contracts would be made and that all offers were withdrawn.

Lubricating Oils Slow

Lubricating oils are moving slowly to the smaller jobbers who have their initial fills of motor oils and of summer farm specialties but some of the larger distributors are still delivering to their stations. The country jobbers are complaining that they are long on oils but short on business but expect an early improvement. The bright stock market is not as strong. Some bright stocks said to have a rather high cold test have been sold at 35 cents in this market. The Pennsylvania oils are also still easy in tone.

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Market Tone in East Still Stronger

Sentiment Continues to Show Increased Confidence, Although Heavy Buying Is Confined Largely to Gasoline and Fuel Oil

By A. E. Mockler

New York Bureau, The Oil and Gas Journal, Rooms 1919-21, No. 154 Nassau Street

NEW YORK, Apr. 28.—Strength in eastern refined products markets is still largely confined to gasoline and fuel oil, other products as yet having failed to share in the general firming-up tendency evidenced by these two. Sentiment throughout the market is noticeably better, but buyers have been slow to come in for such products as kerosene, lubricating oil, paraffin wax, gas oil, etc., and thus there has been nothing to take up the slack caused by the top heavy refinery holdings of some of these items.

The statistical position of the gasoline market has shown perceptible improvement this week. The American Petroleum Institute reported that gasoline stocks at refineries representing 95.6 per cent of the country's total refining capacity decreased 432,000 bbls. to 53,477,000 bbls. in the week ended April 19.

With the California gasoline price structure working into firmer ground, sentiment in the East Coast markets has become more optimistic. Marketing of California U. S. Motor at extremely low prices has had a disturbing effect upon the eastern markets during recent months, and has been responsible for much of the price cutting which demoralized the refinery market in this area since the start of the year.

The action of Standard Oil Co. of California in posting a price of 6½ cents per gallon at which it will purchase gasoline in cargo lots delivered at San Pedro, Calif., has gone far toward removing California as the "danger zone" in the gasoline market. The offer of the California company, which was effective April 23, is expected to stop the dumping of distressed California motor fuel. The 6½-cent price specifies U. S. Motor gasoline. While the posting of this price was a distinct innovation for the oil industry, the action of Standard of California is regarded as one of the most constructive steps yet taken for the stabilization of the industry in California. Holdings of motor fuel by California refiners on April 19 amounted to 15,730,000 bbls. These stocks are out of all proportion to the refinery holdings in other sections of the country, and indicate a top-heavy condition with respect to surplus holdings on the Pacific Coast. Following the posting of the 6½-cent price at San Pedro, offers of California U. S. Motor for shipment East at low prices have been generally withdrawn.

Refiners are showing interest in rumors of an impending advance in Mid-Continent crude prices. The meeting of the board of directors of the American Petroleum Institute here later in the week is also being looked forward to with interest, the trade expecting clarification of the various issues with respect to crude production and refinery curtailment now confronting the industry.

Tank Car Gasoline

While the undertone is firming up steadily, the posted price is still held at 8½ cents per gallon, refinery, in tank car lots, by the principal sellers. Other marketers are quoting as high as 9¾ cents per gallon for U. S. Motor, but it is understood that there is plenty of motor fuel available at the 8½-cent level at New York and nearby market terminals.

Cold rainy weather during the forepart of the week tended to cut consumption somewhat, but demand picked up during the closing half of the period, and jobbers were ordering forward tank car shipments in better volume.

Tank car movement of premium fuels is picking up steadily, with sales of the higher quality product forming an increasing part of refiners' sales totals.

Tank Wagon Gasoline

An advance in tank wagon and service station prices throughout the entire eastern area is looked for daily, due to the better tone of the market at refineries and the seasonal broadening in demand.

Premium gasolines are still being largely featured by principal marketers in this area, with U. S. Motor being relegated more to the background every day.

A number of minor price readjustments have been made at points in eastern territory where local competition had forced quotations under the general parity of the area.

Better weather during the second half of the week brought out a larger demand for gasoline, and tank wagon deliveries showed material increase.

Kerosene

Seasonal easiness has developed in the kerosene market, and the situation is far from strong at refineries in this area. While the posted price for 41-43 water white in tank car lots at refineries is maintained at 7¾ cents per gallon, the general going price for this oil is 7¼ cents, with rumors of a little business at 7 cents in competitive trading.

While export movement of kerosene has picked up a little during recent weeks, volume of foreign sales still leaves much to be desired and the statistical position of kerosene at refineries in this area is by no means bullish. Should spring demand be late in getting under way, it is probable that the local market will witness a price cut of a quarter to a half-cent per gallon in tank car lots.

Tank Wagon Kerosene

Marketers have made no price changes in kerosene in East Coast area during the week, but the market tone is showing some softness, reflecting current weakness at the refineries.

Demand has lagged during the period, although marketers look for an early pick-up in demand. Kerosene has shown comparative stability in tank wagon markets throughout the season, thus far.

Petrolatum

Domestic consuming manufacturers were reported in the market for petrolatum in fair volume this week, and contract shipments were holding up well. Manufacturers of various sunburn creams and other pharmaceutical preparations which enjoy a large sale during the summer season have been large buyers of petrolatum within the past weeks, while export business has also picked up somewhat.

While prices remain unchanged on both the white and amber grades, the market undertone has strengthened somewhat, in sympathy with the recent advances in eastern crude oil prices. Refinery holdings of petrolatum are not believed to be excessive, and this article is in firmer position than other refined products which come in for sharper competition owing to the larger number of refiners engaged in production. Petrolatum falls more or less within the specialty class with most sellers.

Lubs

Demand for cylinder stocks has been slow in getting under way and the market has again turned soft. Stocks are reported available in the field for prompt shipment at prices a half to a cent per gallon under quoted levels, but refiners are nominally quoting the prices previously noted—31½ cents for 600 steam refined, 33½ cents for 635, 37½ cents for 650, 39 cents for 600 Pennsylvania flash, 42 cents for 630 flash, 38½ cents for Warren E. 37½ cents for Oil City E, 48 cents for light bright stocks and 47 cents for dark, all in barrels, at Bayonne.

Red and pale oils have held steady, with a fair contract movement recorded and spot demand also holding up fairly well.

Paraffin Wax

Continued slack buying has weakened the market, and prices are fractionally lower. Spot 120-122 a.m.p. fully refined is available at 3½ cents per pound, with other grades as follows: 125-127 a.m.p., 3¾ cents; 130-132 a.m.p., 4⅜ cents; 133-135 a.m.p., 5¼ cents, and 135-137 a.m.p., 5½ cents. On the latter three melting points it would be possible to shade quoted prices by an eighth cent per pound, it is believed.

Export buyers are still holding off the market locally, although a better movement is reported at the Gulf this week.

Diesel Oil

The market tone is a little firmer. Principal sellers continue to hold the posted price at $2 per barrel, although $2.10 is quoted in one or two instances, all in bulk, f.o.b. East Coast refinery terminals.

Consumption is holding up well, and the outlook favors a continued good demand. Although large vessel construction is again veering toward steam, many of the average size passenger and freight vessels now coming off the ways are equipped for Diesel-electric drive, all of which indicates steadily widening consumption.

Refinery holdings of Diesel oil are not excessive, and the possibility of an advance of 10 cents per barrel in the near future is by no means remote.

Fuel Oil

With a number of large new vessels entering service, with New York as home or principal fueling port, marine sales of bunker "C" fuel oil are steadily growing. The success of the Bremen and the Europa, new German speed queens of the Atlantic, has again centered attention on steam, and probably retarded the trend toward Diesel construction, in so far as large liners are concerned.

Refiners at principal Atlantic Coast terminals continue to quote the fuel oil market at $1.15 per barrel, in bulk, at refinery terminals, with the usual charge for lighterage alongside within the harbor limits. Demand is well sustained, and principal factors are adhering to the new schedule.

Consumption of heavy fuel oil for industrial heating, which has become an important factor in eastern markets, fell off substantially during the week, warm weather greatly retarding demand.

Russian coal is seen as the latest competitor of fuel oil in the British market, one Canadian concern having just signed a 10-year contract calling for the delivery of 250,000 tons of Russian coal per annum, for distribution in Canada.

Gas Oil

The market is far from strong, but no important developments occurred during the week. The posted price of 28 plus recycled oil here remains unaltered at 5¼ cents per gallon, at refineries, but shading of this quotation is more or less general, with average going prices somewhere between 4¾ and 5 cents per gallon in the tank car market.

The advent of daylight saving in New York, which started April 27, is expected to be reflected in curtailed withdrawals of gas oil by the large manufactured gas companies operating in this area. This is a normal development, and the falling-off in volume is noticeable, despite of the fact that most consumers in this area utilize electric light.

Movement of low-grade gas oil against contracts for domestic heating oils has also fallen off a little during the past week, warmer weather throughout the East having been instrumental in curtailing consumption. Movement of this oil is about over for the current season, refiners and marketers declare.

Solvent Sales Gain

East Coast refiners report a steadily broadening market for mineral spirits. For tank car shipment from refineries, sellers are quoting 11 cents per gallon, with tank wagon quotations ranging from 16 to 18 cents per gallon.

Demand for V. M. and P. naphtha from the paint and varnish trades is picking up, with the market quoted here at 11 cents per gallon in tank cars at the refineries and 16 cents per gallon for tank wagon deliveries in New York City.

Gulf Export Markets

While export markets have been quiet at the Gulf this week, the market tone is steady. Settlement of the price war between Royal Dutch and Standard of New York in Far Eastern markets, it is believed, has removed the last obstacle to a higher gasoline export price basis at the Gulf, and a restoration of the old price schedule on the part of the export association would not come as a surprise.

British and French buyers are expected to come into the market for a number of cargoes of gasoline at the Gulf during the first half of May. There were no gasoline fixtures reported during the week just ended, although there was a fair movement of motor fuel out of the Gulf against orders previously booked.

Fuel oil at the Gulf was reported steady at 75 cents a barrel, with little export interest being shown. A large domestic steel company was reported to have placed a term contract for nine cargoes of fuel oil for shipment from the Gulf during the week.

California competition with Gulf gasoline markets is expected to ease off as a result of the stronger market for motor fuel on the Pacific Coast.

Kerosene export demand has been along routine lines during the week, with the market unchanged. Practically all of the demand has been for small quantities for prompt shipment, although sellers are figuring on several mixed cargoes of gasoline and kerosene for shipment from the Gulf later on in the year.

A routine movement of lub oils and paraffin wax was reported in the Gulf market during the week.

Petroleum Exports

A substantial falling-off in exports of refined products from New York is reported, but this is believed to be but a temporary condition, and inquiries now in the market indicate that movement into export channels will pick up shortly.

While shipments from New York have declined, this is due in some measure to the fact that much of the export business booked by operators in this market is being shipped out through other ports on the Atlantic Seaboard, it is believed.

The following table shows principal exports of refined petroleum products from New York for the past three weeks (all figures in gallons unless otherwise noted):

	Week ended		
	Apr. 19	Apr. 12	Apr. 5
Gasoline	211,000	355,000	795,000
Naphtha	260,000	1,065,000	1,521,000
Kerosene	153,00	220,000	205,000
Fuel oil	27,000	55,000	17,000
Lubricating oil	1,530,000	1,416,600	2,090,000
Petroleum, refined	973,000	1,425,000	2,285,000

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	Pounds		
Petrolatum	66,000	14,000	159,000
Paraffin wax	888,000	1,920,000	916,000
Refined	10,000	74,000	.....
Scale	180,000	1,350,000	660,000
Lubricating grease	1,022,000	1,250,000	1,775,000

Cased naphtha and kerosene sales have shown some improvement in recent weeks, foreign operators buying ahead in anticipation of an early price mark-up on gasoline and naphtha.

Imports

Imports of crude and refined petroleum at the principal United States ports for the week ended April 19 totaled 1,791,000 bbls., a daily average of 255,857 bbls., compared with 1,401,000 bbls., a daily average of 200,143 bbls. for the previous week and a daily average of 261,536 bbls. for the four weeks ended April 19. Details follow:

	Bbls. of 42 gals.
At Atlantic Coast ports—	
Baltimore	145,000
Boston	65,000
New York	1,012,000
Philadelphia	342,000
Others	186,000
Total	1,750,000
Daily average	250,000
At Gulf Coast ports—	
New Orleans and Baton Rouge	15,000
Tampa	26,000
Total	41,000
Daily average	5,857
At all United States ports—	
Total	1,791,000
Daily average	255,857
Daily average four weeks	261,536

Distribution of total imports is as follows:

Crude	1,157,000
Gasoline	179,000
Gas oil	44,000
Fuel oil	385,000
Kerosene	26,000

California Oil Receipts

Receipts of California crude and refined petroleum at Atlantic and Gulf Coast ports for the week ended April 19 totaled 195,000 bbls., a daily average of 27,857 bbls., compared with 254,000 bbls., a daily average of 36,286 bbls. for the previous week, and a daily average of 45,214 bbls. for the four weeks ended April 19. Details follow:

	Bbls. of 42 gals.
At Atlantic Coast ports—	
Philadelphia	98,000
Others	97,000
Total	195,000
Daily average	27,857
At Gulf Coast ports—	
All ports	None
At Atlantic and Gulf Coast ports—	
Total	195,000
Daily average	27,857
Daily average four weeks	45,214

Distribution of total California oil receipts is as follows:

Gasoline	195,000

Strength in the California gasoline market, it is expected here, will result in the withdrawals of much of the low-priced Pacific Coast motor fuel which has been marketed in the Atlantic Coast market, to the detriment of the refinery market in this area.

MICHIGAN FIELDS

(Continued from Page 56)

ing completed in the Dundee formation. It is the No. 1 Fred Eadus, SE NE. Section 12-10-17. It was started by A. J. Doblinger, but was temporarily abandoned at about 1,850 feet because of legal controversy over the lease. Recently the lease was purchased by the National Petroleum Corp. If it had been completed when first drilled it might have been brought in with an initial production of 1,000 bbls. or more daily in the Dundee as it was surrounded with large initial producers. Now it probably will be no more than a small pumper of 50 to 100 bbls. as the gas pressure is gone. The Eureka Gas & Oil Co. leased the east 3½ acres of the Eadus property and is drilling a well at about 1,500 feet.

The Lima Oil Corp. has abandoned its No. 6 Louis P. Haight, NE SW, Section 9-10-16, Muskegon Township.

Permits were issued for the Ohio Oil Co.'s No. 1 Thomas Clapp, NW SW, Section 34-13n-1e, Mount Haley Township, Midland County, and the Kirby Orchard Co., trustee's No. 1 Kirby Orchard Co., NW NW, Section 26-2s-17w, Covert Township, Van Buren County, in the southwestern corner of the State.

Manistee Wildcat

Diamond-Thompson-Holland's No. 1 Lee A. Lewis, NW SE, Section 15-20n-17w, Grant Township, Mason County, about 8 miles south of Manistee, is shut down at 2,400 feet after striking no oil, gas or water in the Dundee formation.

Southwestern Michigan Wildcat

V. M. Voorhees is moving his rig from the new producing wildcat completed last week in Cass County to a new location about 1,000 feet south.

Blair and Miller's No. 2 Stutsman, NE NW, Section 32-7s-13w, Porter Township, Cass County, the first producer, is pumping at the rate of about 12 bbls. a day in the upper Traverse at 704 feet.

The National Petroleum Corp. announced that a rig was being moved to a new wildcat location, No. 1 John Commissaris, NE NE, Section 9-4n-13w, Salem Township, Allegany County. The company recently drilled a dry hole in Hopkins Township, Allegany County.

JOBBERS IN CHICAGO INTERESTED IN LATE MAY

(Continued from Page 128)

Kentucky came through with a belated advance of 1 cent in its tank wagon scale over the territory. There was an adjustment in prices in California which amounted in part to a restoration of the scale in Los Angeles by the Standard Oil Co. of California. Other adjustments have been made in the Standard Oil Co. of Indiana and of Ohio where prices had been reduced below normal but no general change has been made in the Standard Oil Co. of Indiana territory. One is expected as soon as the refinery price has been stabilized at 7½ cents. The trade, large and small, expects a slight crude advance and a tank wagon advance of 1 cent a gallon on gasoline sometime before the middle of May.

KANSAS FIELDS

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Sheppard, SW cor. SE SW, Section 2-22-10, is spudding. Theta Oil Co. made location for No. 2 Pixlee, SW cor. NW SW, Section 9-22-10. Aladdin Oil Co. and Phillips Petroleum Co.'s rig is up for No. 2 Jones, NE cor. SE NW, Section 36-24-10. Skelly Oil Co. and Tidal Oil Co.'s No. 20 Wick, SW cor. SE SW, Section 27-22-11, made 60 bbls. in sand 1,882-91 feet.

Gove County

Valerius and others made location for No. 1 Jones, NW cor., Section 24-13-27w.

Grant County

McKenna and others' No. 1 Sullivan, NE cor., Section 12-29-38w, is a rig.

Harvey County

Gypsy Oil Co. and others made location for No. 1 Hege, SE cor. NW SE, Section 13-22-2w.

Hodgeman County

Phillips Petroleum Co.'s No. 1 Houseman, NW cor. NE NE, Section 30-22-22w, is dry and abandoned at 5,120 feet.

Marion County

Youker and others' No. 2 Riffel, SW cor. SE SE, Section 10-17-4, is spudding.

McPherson County

Gypsy Oil Co. is building the rig for No. 1 Stucky, SE cor. SW SE, Section 33-20-3w, Voshell Pool. W. C. McBride, Inc., is moving tools in for No. 1 Krehbiel, SE cor. SW NE, Section 4-21-3w. The rig is being built for No. 2 Krehbiel, NE cor. SW NE, Section 4-21-3w. Sinclair Oil & Gas Co.'s No. 4 Voshell, NW cor., Section 10-21-3w, is preparing to deepen from 3,453 feet. Galt Brown Oil Co.'s No. 1 Zeitlow, NE cor. SE SE, Section 7-17-1w, is a dry hole at 2,897 feet. Mid-Kansas Oil & Gas Co.'s No. 1 Pitts, C SW SE, Section 2-19-2w, made 390 bls. in chat 2,924-93 feet. Kansan Oil Corp.'s No. 1 Otto, SW cor. NW, Section 21-20-1w, has been abandoned at 3,644 feet. Atlantic Oil Producing Co.'s No. 1 Stucky, CEL SE, Section 5-21-3w, Voshell Pool, has been abandoned at 500 feet. Independent Oil & Gas Co.'s No. 1 Stuckey, CEL, Section 5-21-3w, is dry and abandoned at 3,750 feet. The Prairie Oil & Gas Co.'s No. 1 Krehbiel, SE cor. SW, Section 4-21-3w, Voshell Pool, made 1,800 bbls. from Siliceous lime 3,329-99 feet. No. 2 Krehbiel, SW cor. SE SE, Section 4-21-3w, has been completed in Wilcox sand 3,251-41 feet for 1,840 bbls. Dixie Oil Co. and others' No. 2 Voshell, SE cor. NW, Section 9-21-3w, is dry and abandoned at 2,820 feet.

Morton County

Hydraulic Oil Co.'s No. 1 Butts, NW cor. SE, Section 22-34-43w, is driving surface pipe.

Russell County

Austin Oil Co. has the rig up for No. 1 Rockefeller, SE cor., Section 6-13-12w.

Stevens County

Argus Gas Co. made location for No. 1 Barrows, C SW, Section 32-34-38w. Location has also been made for No. 1 Asher, C NW, Section 7-35-37w.

Sumner County

Harris & Haun's No. 1-A Welch, SW cor. SE, Section 9-34-1, is drilling deeper at 4,150 feet. Shawver and others' No. 2 Curry, C NW SW, Section 26-34-2, is spudding.

CANADIAN FIELDS

(Continued from Page 53)

wells in the first three months of the year delivered 98,978 bbls. of crude naphtha, being 52.96 per cent of the total naphtha deliveries of the field; its light crude deliveries were 2,366 bbls. Royalite Oil Co. took second place with 65,907 bbls. of naphtha and 5,426 bbls. of crude, and Foothills Oil & Gas Co. ranked third with 13,107 bbls. of crude. Total deliveries from the field for the first three months of 1930 were 186,864 bbls. of naphtha and 86,265 bbls. of crude, a grand total of 269,129 bbls. or at the rate of more than 1,000,000 bbls. a year.

Royalite's No. 16, LSD 2, Section 12-20-3w5, is testing production at 6,224 feet, some 1,515 feet in the lime. This is the greatest depth in the Madison yet reached by a Turner Valley well.

Failure in the North

In the North Turner Valley, following close on the completion of Model Oils' No. 1 with a recovery of 130 bbls. a day, Dome Oils' No. 1, Section 24-20-3w5, has been abandoned at 5,960 feet. Drilling in the lower Dakotas at 5,660 feet the drill unexpectedly encountered a recurrence of the overlying Benton shales, and after going 300 feet more without any indication of passing through the fault, it was decided to discontinue operations. Location is on the east side of the structure a short distance north of United Oils' No. 4 which is taking a small production from the Dalhousie sands. Model Oils' No. 1 producer is in Section 22-20-3w5, on the west side of the structure. Casing and equipment from Dome's No. 1 will be salvaged and No. 2 started immediately on acreage in the south end of the field.

South Turner Valley

In Section 4-19-2w5, Mill City Petroleums' No. 1, LSD 14, is below 5,000 feet and fishing for lost drill rods, with about 3,000,000 feet of wet gas. East Crest Oil Co.'s No. 1, LSD 5-6, same section, is drilling past lost basket around 4,410 feet; East Crest's No. 2, LSD 4, is drilling at 1,880 feet with acid test showing a perfectly straight hole.

Central Turner Valley

In the Central Turner Valley, Calmont Oils' No. 1, LSD 2, Section 1-20-3w5, is the latest test to get the lime. Deep formation was encountered at 5,454 feet after redrilling past whipstock from 4,965 feet. The old hole was carried to 5,650 feet encountering good gas indications before drilling difficulties developed. Freeman-Lundy Syndicate's No. 1, LSD 10, is drilling 300 feet in the lime at 5,198 feet with additional gas. Sioux City Oils' No. 1, same LSD, is drilling 75 feet in the lime at 4,460 feet depth after getting two good shows of wet gas.

Illinois-Alberta Oils' No. 1, LSD 14, Section 12-20-3w5, has new derrick up to resume at 3,683 feet. Structure Oil & Gas' No. 1, LSD 7, Section 31-19-2w5, is drilling around 3,600 feet with 10-inch casing at 3,580 feet and planning to carry this string to the lime. Light crude from the McDougall sand is being bailed at intervals.

Drilling in the Foothills

In the Moose Mountain district, west of Calgary, Anaconda Oils, Ltd. of Calgary has secured a 40-acre tract and may drill. Hudson's Bay Oils' No. 1, LSD 8, Section 1-18-3w5, is drilling below 1,960 feet. Milk River Oils, Ltd. has secured 320 acres south of the Warner well and has derrick erected.

On the Moose Dome, reports that Moose Oils' No. 1, LSD 16, Section 29-22-6w5, had commercial production are officially denied, though the test at 2,560 feet has good indications.

On the Waite Valley structure, Calgary Development & Production Corp.'s No. 1, LSD 10, Section 21-19-3w5, is drilling at 2,850 feet and going down to the lime after getting a small show of light crude in the Dalhousie below 4,210 feet. Innerfold Oils' No. 1, LSD 2, Section 6-20-3w5, is reported drilling around 3,500 feet. Angus Oils' No. 1, LSD 5, Section 3-21-4w5, is drilling at 2,165 feet.

In the Aldersyde-High River area, Ranchmen's Gas & Oil Co.'s No. 1, LSD 16, Section 13-20-29w4, is drilling at 4,030 feet. East & West Oils, Ltd. of Chatham, Ontario, is preparing to start a test in the same area, offsetting High River Oilfields' No. 1, location having been spotted in Section 29-18-29w4. The company holds more than 5,000 acres on the Aldersyde structure, as well as acreage in southwestern Ontario. Dr. W. A. Elgie of Chatham is president, while R. C. Skene is managing director and Chris Raven secretary-treasurer. The latter are now in the West arranging for drilling operations.

On the New Black Diamond structure, west of Turner Valley, Weymarn Petroleums' No. 1, LSD 1, Section 3-20-3w5, is drilling at 3,820 feet with a small gas show in the Fernie shales.

Red Coulee Field

Though there have been no further completions in the Red Coulee Field, a recent summary shows rapidly increasing activity in that area, with 21 wells either drilling or preparing to drill. On the Montana end, Cosmos Petroleum Co.'s No. 1 Thacker, Section 2-37-4w, has started pumping, with a flush production rated at 400 bbls. a day. The Maple Leaf refinery's pipe line has been connected with the Cosmos storage tanks. Cosmos' No. 2 Thacker is being started just west of No. 1. Monalta Oil Co.'s No. 2 Buckley, Section 1-37-4w, and is making 180 to 200 bbls. Monalta's No. 3 Buckley, same section, is rigging up. Mid-Continent Oil & Refining Co.'s No. 2 Farbo, Section 2-27-4w, is drilling below 2,050 feet with water cased off. Mid-Continent's No. 1 has pumped up to 198 bbls. Ohio Oil Co. is reported moving in two outfits to test a 640-acre tract close to the Cosmos and Monalta holdings. Huso Brothers' No. 1, SE SE, Section 1-37-4w, is drilling below 1,860 feet with 8-inch casing set at 1,640 feet and making rapid headway. Rice & Radigan's No. 1 has been spotted in NW SW, Section 1-37-4w.

On the Alberta side, Commonwealth Petroleums' No. 1, LSD 10, Section 3-1-16w4, is drilling at 1,769 feet. Hol-Gar Petroleum Co.'s No. 1, LSD 1, Section 11-1-17-4w, north of Kotops' No. 1, is reported dismantling to move to a new location. Devonshire Oils' No. 1, LSD 3-4, Section 10-1-16w4, is drilling around 200 feet. Southern Alberta Exploration's No. 1, LSD 8, Section 3-1-16w4, is drilling below 50 feet. Alberta Pacific's No. 1, LSD 2, Section 3-1-16w4, offsetting Vanalta's No. 1 producer to the east, is drilling below 350 feet after cementing off surface water. Capitol Oil & Gas Co.'s No. 1, LSD 3, Section 21-1-16w4, is spudding in. Dalco Oil & Gas Co.'s No. 1, LSD 4, Section 11-1-16w4, is below 565 feet. Ko-Top Oils' No. 1, LSD 1, Section 2-1-17w4, is drilling at 1,800 feet.

O. G. Devenish has purchased from Earl A. Grant some 400 acres of leases

(Continued on Page 140)

Natural Gasoline Manufacture

California Natural Gasoline Production Lower During March

California's natural gasoline production declined during March, the daily average being 4,850 bbls. less than the average for the preceding month.

One hundred thirty-eight natural gasoline plants with a daily indicated capacity of 2,306,000,000 feet, report a recovery of 69,962,898 gallons of natural gasoline from 52,339,896,000 feet of gas treated in March.

Utilization of natural gasoline amounted to 1,491,534 bbls., an increase over February of 122,353 bbls. Daily average utilization of 48,114 bbls. was 5,621 bbls. less than daily average production of 53,735 bbls.

Stocks of natural gasoline at the end of March amounted to 1,885,836 bbls., of which 36,790 bbls. were reported by natural gasoline plant operators and 1,849,046 bbls. by refinery operators. This is an increase of 174,249 bbls. over February stocks. This stock figure of 1,885,836 bbls. is approximately 39 days' supply at the current rate of consumption.

CALIFORNIA NATURAL GASOLINE PRODUCTION, DISTRIBUTION AND STOCKS
March, 1930

Production by Fields

	Gas treated (1,000 ft.)	Natural gasoline produced (gals.)
Fullerton and Whittier	762,209	1,408,849
Midway	2,745,233	4,298,059
Huntington Beach	1,004,477	2,824,662
Long Beach	7,906,049	14,798,205
Richfield	896,961	958,095
Santa Fe Springs	17,881,404	21,375,097
Seal Beach	1,646,272	2,685,259
Ventura Avenue	4,914,373	4,812,440
All other fields	14,582,918	16,802,232
Total	52,339,896	69,962,898

Production by Methods

Type of plant—	Gas treated M. cu. ft.	Natural gasoline produced (gals.)	Gasoline recovery per M. cu. ft. gas treated
Oil absorption	41,962,552	55,773,468	1.329
Compressor	248,048	269,268	1.086
Combination comp. and oil absorption	10,129,296	13,920,162	1.374
Total	52,339,896	69,962,898	1.337

Finished gasoline produced at plants 21,111 bbls.

Distribution

	Bbls.	Bbls.
Stocks first of month		1,711,587
Produced during month		1,665,783
Quantity mixed with crude or unfinished oils	255,304	
Used in blending at refineries	1,023,901	
Stocks end of month	1,885,836	
Balance*	212,329	
Total	3,377,370	3,377,370

Stocks

	Gals.	Bbls.
Natural gasoline held by natural gasoline plant operators	1,545,781	36,790
Natural gasoline held by refineries	77,659,932	1,849,046
Total	79,205,113	1,885,836

*Includes evaporation losses, purchases by jobbers for blending, etc.

GASOLINE SUPPLY MEN MEET

Directors of the Natural Gasoline Supply Men's Association met April 24 and made final arrangements for the entertainment of the members and visitors during the convention of the Natural Gasoline Association of America to be held in Tulsa May 20, 21 and 22. M. F. Waters, J. H. Satterwhite, J. B. McMahon, George W. Probst and Ray Miller were present and apparently the convention is assured of a real smoker the first evening, a well planned dance the second evening and a full table of eats each noon for the Dutch lunch, which has been one of the features during the idle moments of the conventions of the past.

Construction and Operation

PLANT DESIGN*

The absorption and distillation units of a natural gasoline plant have a major influence upon plant efficiency. These components of the plant treat the raw gas and produce a raw product. That part of the plant which brings the gas to the absorption unit and that part whose function it is to finish off the raw product are also important factors of plant design. The "cut and try" construction of these parts without any engineering belongs to another era.

From the early days of small volumes and high vacuum, the tendency had been toward small gathering systems and small compression cylinders. Today's practice is very definitely large lines with relatively high intake pressures. Instead of absorption pressures of 30 pounds, we aim at 35 pounds or higher. Instead of 14″x20″ cylinders we try 18″x20″ and we try for a low vacuum intake in order to get the most out of the machines. Larger lines and less resistance through the lines add to the investment cost of lines but reduce the cost of compressors and of compression. The higher absorption pressure adds to efficiency or enables a reduced oil rate or higher oil temperatures, which all amount to the same thing as far as results are concerned.

These developments were made possible by the improvements in designs of the compression machinery. Not only has the general average price per unit of horsepower gone down in the last 10 years, but efficiencies have been increased. Ratings for certain standard type machines have in fact gone up as much as 25 per cent. These improvements were occasioned by competitive conditions and the natural progress in a field where finis has not yet been written.

When compressor sizes such as will give the desired plant intake pressure are selected, that pipe line system is planned which will cover the then producing area and allow for extensions as the oil field is further developed. Line sizes are selected to give the desired pressure drop with a rated flow of gas. Lines are planned to give the least variations from the horizontal or definite gravity flow, in order to hold to a minimum the number of necessary drip installations. A sufficiency of drips must be provided in order to keep the full capacity of the line open during those seasonal periods when water vapor and gasoline vapors in the gas are partially precipitated in the lines.

After the gas has been delivered to the plant and its gasoline content removed, along with some fixed gases, the condensate must be processed for the elimination of such ethane, propane and excess butane as may have been retained therein. Practically no market exists today for unstabilized gasoline. What market is found is at a penalty in price.

A gasoline analysis of the raw gasoline, or a gas analysis and a predetermined recovery may be used as a basis for the design of a rectifier. Obviously, the final products desired are taken into consideration. Bubble towers of varying design but similar in principle are used, the number of trays varying with the character of products treated and produced as final products. Eighteen to 30 trays are not uncommon.

While some manufacturers include a number of special products of rectification, the major function of the "stabilizer" is to remove the fixed gases. That function is being performed with increasing facilitity and exactness, with the result that the manufacturer has been able to make a number of products of various yet definite volatility characteristics.

*Tenth of a series of articles explaining the inner workings of a natural gasoline organization. The series was prepared by an operator actively engaged in all phases of construction and operation.

Who's Who
IN NATURAL GASOLINE MANUFACTURE

BARNSDALL OIL COMPANIES

The Barnsdall Oil Co. with headquarters in Tulsa and the Barnsdall Oil Co. of California with main offices in Los Angeles are both manufacturers of natural gasoline. The operations of the two companies so far as natural gasoline manufacture are concerned, are separate.

The Tulsa headquarters with A. J. Schlosser, general superintendent in charge, operates eight plants in Oklahoma and one in Kansas. The company has been a manufacturer of natural gasoline for several years operating originally in the Osage area of Oklahoma. As the result of its crude oil operations in the Greater Seminole area two large plants were built in the Earlsboro Field. The company also acquired a large plant in the Rainbow Bend Field of Kansas when the properties of the Waite Phillips Co. were taken over in 1926.

The California company became a manufacturer of natural gasoline last year as the result of its extensive operations in the Elwood Field of that state. With the Rio Grande Oil Co. it is now operating a 65,000-gallon plant on the Doty farm of the Elwood Field.

The Barnsdall Refineries, Inc., one of the Barnsdall companies, operates refineries at Barnsdall and Okmulgee, Okla., and Wichita, Kans. These refineries take part of the natural gasoline output of Oklahoma and Kansas plants and the remainder is sold by the tank car sales department of the Barnsdall Refining Co. with headquarters in Tulsa.

In California, the Rio Grande Oil Co. has a 10,000-bbl. refinery at Vinvale. O. Weaver is general superintendent of the natural gasoline plant for the Barnsdall and Rio Grande companies.

Following is a list of the companies' natural gasoline plants:

BARNSDALL OIL CO.
Oklahoma

Location—	Daily cap. gallons
NE NE, Section 15-9-5	30,000
SW SW, Section 11-8-5	20,000
N half NE, Section 6-14-12	8,000
W half SW, Section 23-14-11	3,000
SE, Section 5-20-12	3,000
NW SE, Section 18-23-12	3,000
SW SW, Section 20-21-9	2,500
NW NW, Section 29-25-11	3,500
Kansas	
W half NW, Section 20-33-3	12,000
Total	85,000

BARNSDALL OIL CO AND RIO GRANDE OIL CO.
California

Doty farm, Elwood Field	65,000

Care of Machinery Natural Gasoline Plant Operations

By D. B. Hiatt
Superintendent of Gasoline Plants, Texas Pacific Coal & Oil Co.*

The operation and care of mechanical equipment in a gasoline plant and its direct effect on continuous and profitable production is one of the most important problems in plant operation. It often becomes such a matter of routine that many important features are overlooked. In addition to careful routine attention to all details incident to proper every day operation, the questions of maintenance, improvements, and changes to meet new conditions in the plant form a mass of individual problems which must be solved if your company is to receive a proper return on its improvement.

Most of the plants in this district are from 5 to 12 years old and were built with different ideas and conditions than those under which they are operated at the present time. I hope to cover the practical side of the operating problems with this in view. These ideas that I offer on this subject may not be new to you but if they suggest new angles in handling your individual problems my efforts will have been well repaid.

Gas Engines

Most of the trouble encountered with gas engines comes from improper lubrication, jacket scale, overloading, ignition system, bad alignment of bearings, lack of necessary repairs, and changes in gas supply.

The matter of lubrication is one of importance in any moving machine and requires a lot of study to arrive at the

(Continued on Page 141)

*Read at plant operators' meeting, Breckenridge, Tex., April 22.

SECOND DEEP WELL WILL INCREASE SIGNAL OUTPUT

The bringing in of the second deep well of the Texon Oil & Land Co. (Continental) in the Big Lake Field, Reagan County, Texas, will result in a considerable increase in gasoline production for the Signal Oil & Gas Co., which through its subsidiary, Signal Gasoline Co. of Texas, has the gas contract on approximately 1,000 acres in this field.

The new well, known as No. 2-B University blew in from a depth of 8,131 feet, and like the discovery well, started off flowing through open hole 200 bbls. of oil, with 14,000,000 feet of gas.

Located about a quarter of a mile north of the discovery well, the new producer is flowing the same high gravity oil as No. 1-B University. The latter well, known as the world's deepest producer, started to flow in December, 1928, from a depth of 8,525 feet, and is now producing about 2,900 bbls. of oil and 27,000,000 feet of gas per day. It is estimated that from this one well alone more than 7,000,000 gallons of casinghead gasoline were recovered during 1929.

NEW CANADIAN PLANT

CALGARY, Alberta, Apr. 26.—The Research Engineering Co. has planned to build a natural gasoline plant in the Turner Valley Field in conjunction with the McLeod Oil Co. The McLeod company will deliver up to 25,000,000 feet of gas to the plant daily and will receive 16⅔ per cent of the gross proceeds from the sale of the gasoline. The proceeds from the sale of the residue gas will be divided equally between the two companies. The new plant is expected to cost $300,000.

Brief Items for Petroleum Refiners

SEABOARD OIL BUILD CANADIAN REFINERY

The 20-acre site for the 4,000-bbl. refinery to be built by the Seaboard Oil & Refining Co., Ltd., along the Burrard Inlet near Vancouver, British Columbia, is being cleared and construction work will be in progress shortly. The contract for the plant equipment has been awarded the Southwestern Engineering Co. and the clearing of the land and the building of the docks was awarded the Ellis Cotton Co. Approximately 320,000 bbls. of tankage will also be erected for storage and as work tanks.

Several grades of gasoline will be manufactured along with kerosene, gas oil, fuel oil and special products. These will be marketed throughout western Canada and in northwestern United States as "Seaboard Products." Marketing facilities have been opened at division points in Oregon and Washington through the company's distributor, the West Coast Petroleum Corp. of Seattle.

The Seaboard Oil Co. is incorporated under the laws of the Dominion of Canada, with an authorized capital of 10,000 shares of preferred 7 per cent participating to 10 per cent, convertible, on the basis of two shares of Class "B" for one of Class "A," and 20,000 shares Class "B" no-par value stock, which carried control.

CALIFORNIA STANDARD POSTS GASOLINE PRICE

The announcement on April 23 by the Standard Oil Co. of California that it would purchase U. S. Motor gasoline in cargo lots at San Pedro, Calif., at 6½ cents has greatly stabilized the refinery market along the coast. This price was set for deliveries over a period of 30 days but the price may be advanced or reduced as marketing conditions warrant in the future. This price was posted on U. S. Motor grade but a similar arrangement will be made in the case of other grades of gasoline upon application to the Standard of California.

In making the above announcement the Standard Oil Co. issued the following statement:

"The Standard Oil Co. of California today announced the establishment of a posted price at which it offers to purchase gasoline in cargo lots at San Pedro, Calif. Posting a price for the purchase of gasoline is a new policy and an innovation in the oil industry. For many years the Standard Oil Co. has posted the prices it offers for crude oil at the well in the oil fields, but the wholesale gasoline market has never, in California nor elsewhere, had the benefit of a published purchase price. In the past distress gasoline has from time to time been sold at prices actually below the cost of replacement. It is believed that the existence of such a price will be of considerable importance in establishing essential values and in maintaining an orderly market condition."

VACUUM BUYS STATIONS

NEW YORK, Apr. 26.—Vacuum Oil Co. has acquired the business of the Queen City Petroleum Products Co., at a reported consideration of $1,500,000.

The Queen City company operates bulk plants and a chain of 30 filling stations located in Cincinnati and surrounding territory.

Acquisition of this chain by Vacuum is regarded as another step in the building-up of a national marketing organization for the proposed General Petroleum Corp., to be formed by consolidation of Vacuum and Standard Oil Co. of New York.

MAGNOLIA PETROLEUM CO. COMPLETES GASOLINE LINE

SAN ANTONIO, Tex., Apr. 28.—The Magnolia Petroleum Co. has completed the construction of a 3-inch gasoline pipe line from its refinery plant at Luling to a distributing station just east of the city limits of San Antonio. The line is electric welded and has been tested out with 250 pounds pressure to the inch for a period of 48 hours. Two 400 horsepower electric units have been built on the line, one at the Luling end of the line and the other near Seguin, about midway the length of the line, which is approximately 65 miles long.

At the San Antonio terminal of the line steel storage tanks and loading racks and docks both for railroad cars and motor trucks have been built and gasoline will be distributed to other points in Southwest Texas both by railroad cars and motor trucks. Before the building of this line the company shipped by rail and in some cases it was a two-line haul necessitating higher freight rates. From the San Antonio terminal almost every point in Southwest Texas can be reached with a one-line haul.

RESTRICTIONS TERMED INVALID IN ILLINOIS

WASHINGTON, D. C., Apr. 26.—In many cities there are ordinances prohibiting the construction or maintenance of any filling station within a given radius of residential sections without the written consent of a majority of the owners of all of the buildings within such radius.

The city of Kewanee, Henry County, Illinois, had such an ordinance. However, the Illinois supreme court has affirmed the decision of the circuit court of Henry County declaring that the ordinance is invalid. Such an ordinance is held to be unfair and unreasonable in basing the consent on the number of buildings within the district regardless of their character or size or the size of the lot upon which they are located. The owner of a small frontage with numerous buildings according to the opinion could control the district as against the owner of a majority of the frontage with fewer but larger and more expensive buildings.

KILLED IN EXPLOSION

PORT ARTHUR, Tex., Apr. 26.—Three men were killed today in an explosion at the local refinery of The Texas Company. The three men killed instantly were P. Kebodeaux, C. C. Wilburn and Claude Broussard. Rene Herbert was also seriously injured. A break in a high pressure vapor line is believed to have caused the explosion. The property damage was small.

BEACON CHANGES NAME

NEW YORK, Apr. 26.—Beacon Oil Co., Inc., subsidiary of the Standard Oil Co. of New Jersey, has changed its name to Colonial Beacon Oil Co.

The change resulted from the popularization of the brand name of the company's principal product, Colonial gasoline.

SHELL ADVERTISING PROGRAM

The Shell Petroleum Corp. has instituted a large advertising campaign for its products, featuring Shell motor oil and Shell gasoline. The campaign will use the services of 1,000 newspapers and magazines in 28 states and the advertising matter will be released twice a month. The program will continue throughout the balance of the year.

ROOSEVELT OIL COMPANY MOVES MICHIGAN PLANT

MUSKEGON, Mich., Apr. 28.—Sale of the Muskegon plant of the Michigan Central Refining Co. to the Roosevelt Oil Co. and removal of the plant to the Mount Pleasant oil field of central Michigan was announced today by T. F. Caldwell, secretary-treasurer of the former company.

The Muskegon plant was shut down Saturday after operating for the past 45 days, principally on storage oil. Dismantling of the plant was started today under the direction of R. B. Hovis, superintendent, who will be in charge of plant operations in Mount Pleasant under the new owners.

The Northland Oil Transit Co. of Chicago and Muskegon will continue to operate its pipe line gathering system in the Muskegon Field which now has a daily run of about 350 bbls. of Dundee crude.

The plant will be operated in Mount Pleasant on crude oil to be run from independent producers there by the Simrall Pipe Line Corp. of Cincinnati, Ohio, also operators of a gathering line system in the Muskegon oil field.

The Simrall company will start laying a 4-inch gathering line system in the Mount Pleasant Field today. Storage tanks for the refinery will be completed by May 15 on a site tentatively approved by the Mount Pleasant city commission and the first oil will be run on or before June 1, according to contracts recently closed with the producers by the Simrall corporation.

Capacity of the Mount Pleasant plant is announced to be about 3,000 bbls. If a surplus of production is obtained in the Mount Pleasant area the Simrall corporation plans to build a 100-mile pipe line to Muskegon at a cost of about $500,000 as announced last week.

Mount Pleasant producers are to receive 25 cents a barrel more than the present posted price for 44° Be. gravity crude in the field or $1.25 a barrel.

PHILLIPS BUYS STATIONS

The Phillips Petroleum Co. announces the purchase of the Consumers Oil Co. of Lidgerwood, N. D., and the Richland Oil & Gas Co. of Olney, Ill. Both of these new purchases are small concerns operating bulk plants and two or three service stations each. The company also acquired additional marketing outlets for its products by the recent purchase of the Mount Vernon Oil Co. at Mount Vernon, Ill., the Sloan Oil Co. of Albia, Iowa, and the Newaygo Oil Co. at Shawnee, Okla. Included in these purchases are the bulk stations, filling stations and resale accounts of the respective companies.

NEW MONTANA REFINERY

CASPER, Wyo., Apr. 26.—A new refinery and pipe line is under construction in Teton County, Montana. This plant is on the Great Northern Railroad near Collins and the pipe line will carry oil to the plant from the Bannatyne Field, about 10 miles from Collins. The refinery and line are being financed by Minnesota capital and the principal products will be gasoline and fuel oil.

GULF TO BUILD TERMINAL

NEW YORK, Apr. 26.—The Gulf Refining Co. has acquired property at Syracuse, N. Y., for the establishment of a bulk station, a marine dock and terminal, and tank storage farm.

Five tanks of 420,000 gallons capacity each and four having capacity of 14,600 gallons each will be built.

HUMBLE CO. RESCINDS ITS SHUT-DOWN ORDER

HOUSTON, Tex., Apr. 28.—Humble Oil & Refining Co. today announced it had rescinded its Sunday shutdown plan adopted March 4 following suggestions of the Federal Oil Conservation Board. In a statement issued by W. S. Farish, president of the company, reasons for the action were given as follows:

"On March 4 of this year the Federal Oil Conservation Board suggested to the petroleum refining industry that it adopt a Sunday shutdown plan as a means of preventing the further accumulation of stocks of gasoline, and of bringing supplies more nearly in line with consumption demand. A number of refining units adopted the suggestion of the Federal Oil Conservation Board, and the gasoline situation has to this extent been improved.

"While the operations of the Humble Oil & Refining Co. has been in balance for many months past, this company in adopting the suggestion of the Federal Oil Conservation Board, went further and extended the Sunday shutdown to drilling, producing and transportation operations. This extension of the suggestion to operations other than refining has not been generally adopted by others in the industry, and the Humble Oil & Refining Co. now finds it necessary to modify its present curtailment in order to bring its supplies more nearly in line with consumption demand. It is the purpose of the Humble Oil & Refining Co. not to let its stocks of gasoline exceed stocks on hand the same date a year ago."

RAILWAY FUEL MEN TO MEET

CHICAGO, Apr. 26.—The annual convention of the International Railway Fuel Association will be held at the Hotel Sherman May 6-9, inclusive. As railways are large consumers of fuel oil some time will be devoted to subjects connected with the use of oil for locomotive fuel. The problem of oil storage by railroads and the practice of oil firing will be among the subjects to be brought up for discussion.

LOUISIANA BUYS STATIONS

FORT SMITH, Ark., Apr. 25.—The Standard Oil Co. of Louisiana has acquired the stations of the Quality Oil Co. here and has established outlets through the Armstrong Tire Co., Yantis-Harper Co., Ellefson Tire Co., and the Cutter Tire Co., of this vicinity. Prior to the Standard effecting these outlets the company was not represented here.

BUYS INDIANA STATIONS

Cities Service Oil Co. has purchased the two bulk stations and 15 retail stations of the Independent Tank Line Co. of Mishiwaka, Ind. The latter company is one of the oldest marketing concerns in the Indiana territory.

NEW CANADIAN STATIONS

CHATHAM, Ontario, Apr. 26.—Thayers, Ltd. of London, Ontario, distributors of petroleum products, will establish 11 new stations in western Ontario on the Toronto-Hamilton-St. Catharines Highway.

NEW JERSEY TAX BILL

TRENTON, N. J., Apr. 26.—A bill increasing the gasoline tax from 2 to 3 cents on December 1, 1930, provided the voters adopt the proposed $100,000,000 bond issue, has been passed by the Legislature and sent to the governor.

PIPING ENGINEERS

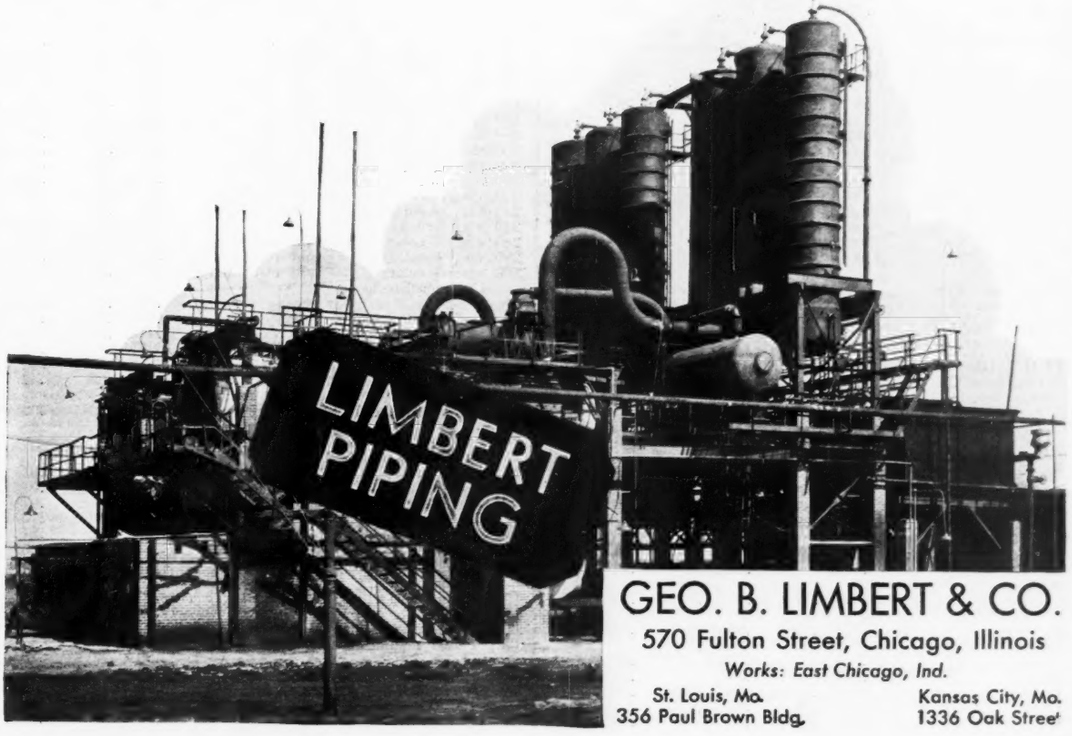
That Know How

Modern high pressure, high temperature piping demands skill, experience, and the best of manufacturing facilities.

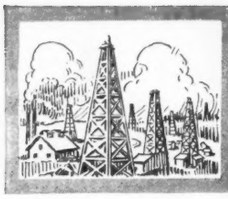
These things Limbert has. Thirty years of specialized experience on difficult piping of all kinds with installations all over the world . . . A proven engineering staff capable of design and versed in the problems of installation as well as the problems of manufacture . . . A big plant with every modern facility for fittings, joints, and fabricated pipe from the simplest job to the most complicated power plant or refinery installation.

Use Limbert to manufacture ordinary requirements or to design and manufacture special piping for every power plant or refinery condition.

A typical cracking still installation furnished complete by Limbert.

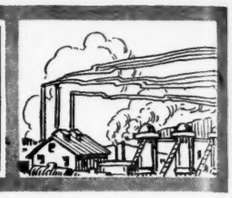


GEO. B. LIMBERT & CO.
570 Fulton Street, Chicago, Illinois
Works: East Chicago, Ind.
St. Louis, Mo.
356 Paul Brown Bldg.
Kansas City, Mo.
1336 Oak Street



REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.



GASOLINE AND NAPHTHA

	Apr. 29		Apr. 22		Apr. 15	
OKLAHOMA (Group 3)—						
50-52 450 endpoint	.07	.07¼	.07	.07¼	.07	.07¼
56-58 450 endpoint	.07	.07¼	.07	.07¼	.07	.07¼
*58-60 437 endpoint (U. S. Motor)	†.07	.07½	.075		.0679	
*60-62 437 endpoint	.075		.075		.075	
*60-62 400 endpoint	.07½	.08	†.07½	.07¾	.075	
*64-66 375 endpoint	.0812		†.07¾	.08	.0788	
68-70 360 endpoint	.08¼	.08½	.08¼	.08½	.08¼	.08½
64-66 437 endpoint (blend)	.06¾	.07	.06½	.07	.06½	.07
NORTH TEXAS—						
56-58 450 endpoint	.06¾	.07	.06¾	.07	.06¾	.07
58-60 450 endpoint	.06¾	.07	.06¾	.07	.06¾	.07
58-60 437 endpoint (U. S. Motor)	.07	.07¼	.07	.07¼	.07	.07¼
60-62 400 endpoint	.07¼	.07½	.07¼	.07½	.07¼	.07½
64-66 390 endpoint	.07½	.07⅝	.07½	.07⅝	.07½	.07¾
64-66 375 endpoint	.07⅝	.07⅞	.07⅝	.07⅞	.07½	.08
68-70 360 endpoint	.08	.08¼	.08	.08¼	.08	.08¼
64-66 437 endpoint (blend)	.06½	.06¾	.06½	.06¾	.06½	.06¾
***NORTH LOUISIANA—**						
58-60 437 endpoint (U. S. Motor)	.07¾		.07¾		.07½	.07¾
***ARKANSAS—**						
58-60 437 endpoint (U. S. Motor)	.07¾		.07¾		.07½	.07¾
PENNSYLVANIA—						
52-54 Naphtha	.07½	.07¾	.07¼	.07½	.07¼	.07½
54-56 Naphtha	.07¾	.08	.07½	.07¾	.07½	.07¾
58-60 Gasoline	.08	.08¼	.07¾	.08	.07¾	.08
60 Gasoline	.08¼	.08½	.08	.08¼	.08	.08¼
62 Gasoline	.08½	.08¾	.08¼	.08½	.08¼	.08½
64 Gasoline	.08¾	.09	.08½	.08¾	.08½	.08¾
68-70 350 endpoint gasoline	.09	.09¼	.08¾	.09	.08¾	.09
CALIFORNIA—						
58-60 437 endpoint (U. S. Motor) domestic	.07	.07½	.07½		.07½	
CHICAGO DISTRICT (Based on Group 3)—						
50-52 450 endpoint (Naphtha)	.07	.07¼	.07	.07¼	.06¼	.06½
56-58 450 endpoint	.07	.07¼	.07	.07¼	.06¾	.07
58-60 437 endpoint (U. S. Motor)	.07⅛	.07½	.07⅛	.07½	.07¼	.07½
60-62 400 endpoint	.07½	.07¾	.07½	.07¾	.07½	.07¾
64-66 375 endpoint	.07¾	.08	.07¾	.08	.07¾	.08
68-70 360 endpoint	.08	.08¼	.08	.08¼	.08¼	.08½
64-66 437 endpoint (blend)	.07¼	.07½	.07¼	.07½	.06¾	
GULF COAST (Export)—						
58-60 (U. S. Motor)	.08		.08		.08	
60-62 400 endpoint	.09		.09		.09	
61-63 390 endpoint	.09¼		.09¼		.09¼	
64-66 375 endpoint	.09½		.09½		.09½	

*Weighted average prices April 28, 21 and 14 as reported by representative refiners. Sales to jobbers only. †No sales reported. Prices show general market.

*Louisiana, Arkansas, Missippi and East Texas delivery.

NATURAL GASOLINE

	Apr. 29		Apr. 22		Apr. 15	
OKLAHOMA (Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.06½	.06⅝	.06½	.06⅝	.06½	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.06½		.06½		.06½	
Grade B, 76-83.9, 375 e.p., rec. 85%	.06½		.06½		.05¾	
Grade BB, 84-92, 375 e.p., rec. 85%	.06½		.06½		.05½	.05¾
Grade C, 80-92, 375 e.p., rec. 78%	.06½		.06½		.05½	
NORTH TEXAS—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.06½		.06½		.06½	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.06½		.06½		.06½	
Grade B, 76-83.9, 375 e.p., rec. 85%	.06½		.06½		.05¾	
Grade BB, 84-92, 375 e.p., rec. 85%	.06½		.06½		.05½	.05¾
Grade C, 80-92, 375 e.p., rec. 78%	.06⅜	.06½	.06⅜	.06½	.05½	
NORTH LOUISIANA—						
Grade AA, 80-87, 375 e.p., rec. 90%	.06½	.06¾	.06½	.06¾	.06½	.06¾
Grade BB, 84-92, 375 e.p., rec. 85%	.06½	.06¾	.06½	.06¾	.05½	.05¾
Grade C, 80-92, 375 e.p., rec. 78%	.06½		.06½		.05½	
CALIFORNIA—						
75-78 375-390 endpoint	.06¾	.07¼	.06¾	.07¼	.06¾	.07¼
CHICAGO DISTRICT (Based on Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.06½		.06½		.06½	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.06½		.06½		.06½	
Grade B, 76-83.9, 375 e.p., rec. 85%	.06½		.06½		.05¾	
Brade BB, 84-92, 375 e.p., rec. 85%	.06½		.06½		.05½	
Grade C, 80-92, 375 e.p., rec. 78%	.06½		.06½		.05½	

BURNING OIL

	Apr. 29		Apr. 22		Apr. 15	
OKLAHOMA (Group 3)—						
41-43 water white kerosene	.04¼	.04½	.04¼	.04½	.04¼	.04½
42-44 water white kerosene	.04½	.04¾	.04⅝	.05	.04⅝	.05
NORTH TEXAS—						
41-43 water white kerosene	.04⅛	.04¼	.04⅛	.04¼	.04⅛	.04¼
40-42 water white kerosene	.04⅛		.04⅛		.04⅛	
***NORTH LOUISIANA—**						
41-43 water white kerosene	.05¼	.05⅜	.05¼	.05⅜	.05	.05¼
***ARKANSAS—**						
41-43 water white kerosene	.05¼	.05⅜	.05¼		.05¼	
PENNSYLVANIA—						
43 Kerosene prime white	.05½		.05½		.05½	
45 Kerosene water white	.05¾		.05¾		.05¾	
46 Kerosene water white	.06	.06¼	.06	.06¼	.06	.06¼
47 Kerosene water white	.06¼	.06½	.06¼	.06½	.06¼	.06½
300 Mineral Seal	.07		.07		.07	
CALIFORNIA—						
38-40 water white Kero. (high buring test)	.04	.04½	.04	.04½	.04	.04½
Engine distillate, 43-44, 445 endpoint	.06	.06½	.06½	.07	.06½	.07
Engine distillate, 42-44, 480 endpoint	.05	.05½	.06	.06½	.06	.06½
CHICAGO DISTRICT (Based on Group 3)—						
41-43 water white kerosene	.04⅜	.04⅝	.04⅜	.04⅝	.04¼	.04½
42-44 water white kerosene	.04⅝	.05	.04⅝	.05	.04½	.05
GULF COAST (Export)—						
41-43 prime white	.06		.06		.06	
41-43 water white	.07		.07		.07	

*Louisiana, Arkansas, Missippi and East Texas delivery.

FUEL OIL

	Apr. 29		Apr. 22		Apr. 15	
OKLAHOMA (Group 3)—						
Below 18 Fuel Oil, per bbl.	.55	.60	.57½	.65	.57½	.65
18-22 Fuel Oil, per bbl.	.57½	.62½	.60	.65	.60	.65
20-22 Fuel Oil, per bbl.	.62½	.67½	.65	.70	.65	.70
22-26 Fuel Oil, per bbl.	.65	.70	.70	.75	.70	.75
24-26 Fuel Oil, per bbl.	.70	.80	.80	.85	.80	.85
26-30 Fuel Oil, per bbl.	.80	.85	.82½	.87½	.82½	.87½
28-30 Fuel Oil, per bbl.	.85	.95	.85	1.00	.85	1.00
32-36 Gas Oil (industrial)	.02⅜	.02½	.02⅜	.02⅝	.02⅜	.02⅝
32-36 Gas Oil (straw color)	.02½	.02⅝	.02½	.02¾	.02½	.02¾
36-38 Distillate	.02¾	.03	.02⅞	.03	.02⅞	.03
38-40 Straw Distillate	.03	.03⅛	.03	.03¼	.03	.03¼
NORTH TEXAS—						
Below 20 Fuel Oil, per bbl.	.50	.55	.50	.60	.50	.60
24-26 Fuel Oil, per bbl.	.67½	.75	.75	.80	.75	.80
32-36 Gas Oil (straw)	.02¼	.02⅜	.02¼	.02½	.02¼	.02½
38-40 Straw Distillate	.02¾	.03	.02⅞	.03	.02⅞	.03
***NORTH LOUISIANA—**						
18-20 Fuel Oil, per bbl.	.80	.90	.80	.90	.75	.85
30-32 Gas Oil	.02¾	.03	.03		.03	
***ARKANSAS—**						
33-36 Distillate	.02¾	.03	.03		.03	
30-32 Gas Oil	.02¾		.03		.03	
16-22 Refinery Fuel Oil, per bbl.	.75	.85	.75	.85	.75	.85
GULF COAST (South Texas)—						
Gas Oil	.04		.04		.04	
Bunker C Fuel (cargo lots), per bbl.	.75	.80	.75	.80	.75	.80
Bunker C Fuel (small lots)	1.05	1.10	1.05	1.10	1.05	1.10
PENNSYLVANIA—						
30-34 Fuel Oil	.04¼		.04⅜		.04⅜	
36-40 Fuel Oil	.04¼	.04⅜	.04⅜	.04½	.04⅜	.04½
CALIFORNIA—						
33-36 Distillate	.02½	.03	.02¾	.03¼	.02¾	.03¼
26-32 Distillate	.01¾	.02	.01¾	.02½	.01¾	.02½
15-20 Fuel Oil, Bunker (at tidewater)	.60	.65	.65	.75	.65	.75
15-20 Fuel Oil (cargot lots), per bbl.	.55	.65	.57½	.70	.57½	.70
27 plus Diesel, per bbl.	.80	.90	.85	1.00	.85	1.00
CHICAGO DISTRICT (Based on Group 3)—						
22-26 Fuel Oil, per bbl.	.70	.75	.72½	.77	.72½	.77
18-22 Fuel Oil, per bbl.	.55	.60	.57½	.62½	.60	.65
28-30 Fuel Oil, per bbl. (zero)	.90	.95	.90	.95	.90	.95
32-36 Gas Oil (zero)	.02½	.02⅝	.02⅝	.02⅞	.02¾	.02⅞
32-36 Gas Oil (industrial)	.02½		.02⅜	.02½	.02⅜	.02½
36-38 Distillate	.02½	.02¾	.02½	.02¾	.02½	.02¾
38-40 Straw Distillate	.02¾	.03	.02¾	.03	.02¾	.03

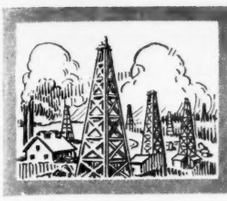
*Louisiana, Arkansas, Missippi and East Texas delivery.

LUBRICATING OIL AND WAX

	Apr. 29		Apr. 22		Apr. 15	
OKLAHOMA (Group 3)—						
100 vis., 2 color, 20-25 cold test	.06	.07	.06	.07	.06	.07
100 vis., 3 color, 20-25 cold test	.05½	.06	.05½	.06	.05½	.06
150 vis., 3 color, 20-25 cold test	.08½	.09	.08½	.09	.08½	.09
150 vis., 4 color, 20-25 cold test	.08	.08½	.08	.08½	.08	.08½
180 vis., 3 color, 23-28 cold test	.10	.10½	.10	.10½	.10	.10½
180 vis., 4 color, 23-28 cold test	.09½	.10	.09½	.10	.09½	.10
180 vis., 5 color, 23-28 cold test	.09	.09½	.09	.09½	.09	.09½
200 vis., 3 color, 23-28 cold test	.11½	.12	.11½	.12	.11½	.12
200 vis., 4 color, 23-28 cold test	.11	.11½	.11	.11½	.11	.11½
200 vis., 5 color, 23-28 cold test	.10½	.11	.10½	.11	.10½	.11
240 vis., 3 color, 25-30 cold test	.15	.15½	.15	.15½	.15	.15½
240 vis., 4 color, 25-30 cold test	.14	.14½	.14	.14½	.14	.14½
240 vis., 5 color, 25-30 cold test	.13½	.14	.13½	.14	.13½	.14
280 vis., 3 color, 25-30 cold test	.17½	.18	.17½	.18	.17½	.18
280 vis., 4 color, 25-30 cold test	.16½	.17	.16½	.17	.16½	.17
280 vis., 5 color, 25-30 cold test	.15	.15½	.15	.15½	.15	.15½
Cylinder Stocks:						
600, steam refined, light green	.09	.11	.09	.11	.09	.11
600, steam refined, dark green	.08	.10	.08	.10	.08	.10
190-200 vis., D color Bright Stock	.41	.42	.41	.42	.41	.42
150-160 vis., D color Bright Stock	.37		.37		.37	
*150-160 vis., D color Bright Stock	.35	.36½	.36	.36½	.36	.36½
150-160 vis., E color Bright Stock	.32	.35	.32	.35	.32	.35
Waxes:						
124-126 White Crude Scale Wax	.02¼	.02½	.02¼	.02½	.02¼	.02½
PENNSYLVANIA—						
34 Neutral	.06¾	.07	.07	.07¼	.07	.07¼
34 Sundebloom	.07¾		.07¾		.07¾	
36 Miners' Neutral	.07½		.07½		.07½	
150, 3 color	.15	.16	.15	.17	.15	.17
180, 3 color	.21	.22	.21	.22	.21	.22
200, 3 color	.25	.26	.25	.26	.25	.26
220, 3 color	.27	.28	.30		.30	
600, steam refined	.23	.24	.23	.24	.23	.24
635, steam refined	.26	.27	.27	.29½	.27	.29½
650, steam refined	.29½	.30	.29½	.30	.29½	.30
600, Pennsylvania Flash	.31	.32	.31	.32	.31	.32
630, Pennsylvania Flash	.35	.36	.35	.36	.35	.36
600, E filtered	.28½	.30	.28½	.30	.28½	.30
600, D filtered	.34½	.35	.35	.35½	.35	.35½
Pennsylvania Bright Stocks	.39½	.41	.39½	.41	.39½	.41
*122-124 White Crude Scale Wax	.02⅝	.02¾	.02⅝	.02¾	.02⅝	.02¾
124-126 White Crude Scale Wax	.02¾		.02¾		.02¾	
GULF COAST (South Texas)—						
100 vis., 2-2½ color, pale oil	.06½	.06¾	.06½	.06¾	.06½	.06¾
200 vis., 3 color, pale oil	.09½		.09¼	.09½	.09¼	.09½
300 vis., 3 color, pale oil	.10¾		.10¾		.10¾	
500 vis., 3½ color, pale oil	.12	.12¾	.11½	.12	.11½	.12
750 vis., 3½ color, pale oil	.13½					
1,200 vis., 3½ color, pale oil	.16					
2,000 vis., 4 color, pale oil	.17					
200 vis., 5-6 color, red oil	.08¾	.09	.08½	.08¾	.08½	.08¾
300 vis., 5-6 color, red oil	.10	.10¼	.09½	.10	.09½	.10

*High cold test.

*At New York.



REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

500 vis., 5-6 color, red oil	.11¼		.10¾	.11¼	.10¾	.11¼
750 vis., 5-6 color, red oil	.12¾	.13	.12¾		.12¾	
1,200 vis., 5-6 color, red oil	.15					
2,000 vis., 6 plus color, red oil	.17					
200 vis., 2½ color, filtered oil	.11	.12	.11	.12	.11	.12
300 vis., 2½ color, filtered oil	.12	.13	.12	.13	.12	.13
500 vis., 2½ color, filtered oil	.14½	.15	.14½	.15	.14½	.15
750 vis., 2½-3 color, filtered oil	.17	.19	.17	.19	.17	.19
CALIFORNIA—						
130 vis., 2½-3 color	.10¼	.10½	.10¼	.10½	.10¼	.10½
200 vis., 2½-3 color	.11½	.11¾	.11½	.11¾	.11½	.11¾
300 vis., 3-3½ color	.13	.13½	.13	.13½	.13	.13½
350 vis., 3½-4 color	.13½	.13¾	.13½	.13¾	.13½	.13¾
400 vis., 3½-4 color	.15	.15½	.15	.15½	.15	.15½
Red Neutral:						
200 vis., 4½-5 color	.11	.11¼	.11	.11¼	.11	.11¼
300 vis., 5-6 color	.12	.12¼	.12	.12¼	.12	.12¼
400 vis., 5-6 color	.13¼	.14	.13¼	.14	.13¼	.14
500 vis., 4½-5 color	.15¼	.15½	.15¼	.15½	.15¼	.15½
500 vis., 5-6½ color	.15	.15¼	.15	.15¼	.15	.15¼
600 vis., 6½ plus color	.16	.16¼	.16	.16¼	.16	.16¼

Note—Bright stocks are not manufactured commercially on the Pacific Coast.

NEW YORK (BAYONNE) REFINERY PRICES

	Apr. 29		Apr. 22		Apr. 15	
Gasoline, U. S. Motor, 58-60, 437	.08½	.09¾	.08½	.09½	.08½	.09½
Kerosene, water white, 41-43	.07¼	.07¾	.07¼	.07¾	.07¼	.07¾
*Fuel Oil, Bunker "C," 14-16, per bbl.	1.15		1.15		1.15	
Fuel Oil, Diesel, 28-30, per bbl.	2.00		2.00		2.00	
Gas Oil, 32-36 gravity	.04¾	.05¼	.04¾	.05¼	.04¾	.05¼
25 pale Paraffin Oil	.10½		.10½		.10½	
28 pale Paraffin Oil	.07¼		.07¼		.07¼	
285 red Paraffin Oil	.12½		.12½		.12½	
250 red Paraffin Oil	.11½		.11½		.11½	
225 red Paraffin Oil	.10		.10		.10	
200 red Paraffin Oil	.09¼		.09¼		.09¼	
Refined Wax:						
120-122 a.m.p., per lb.	.03½		.03⅝		.03⅝	
125-127 a.m.p., per lb.	.03¾		.04		.04	
130-132 a.m.p., per lb.	.04⅜		.04½		.04½	
133-135 a.m.p., per lb.	.05¼		.05½		.05½	
135-137 a.m.p., per lb.	.05½		.05⅝		.05⅝	
Petrolatum in barrels, in carload lots, per pound:						
Dark Green	.01⅞		.01⅞		.01⅞	
Amber	.03⅜		.03⅜		.03⅜	
Extra Amber	.03½		.03½		.03½	
Cream	.06⅜		.06⅜		.06⅜	
Lily White	.06½		.06½		.06½	
Snow White	.08⅜		.08⅜		.08⅜	

*Lighterage 5.0 cents a barrel extra.

NEW YORK (BAYONNE) EXPORT PRICES

	Apr. 29	Apr. 22	Apr. 15
Kerosene, prime white	.07¾	.07¾	.07¾
Kerosene, water white	.09	.09	.09
600, steam refined cylinder stocks, in bbls.	.31½	.31½	.31½
635, steam refined	.33½	.33½	.33½
650, steam refined	.37½	.37½	.37½
600, Pennsylvania Flash	.39	.39	.39
630, Pennsylvania Flash	.42	.42	.42
600, Warren E	.38½	.38½	.38½
600, Oil City E	.37½	.37½	.37½
Light 140-150 Bright Stocks	.48	.48	.48
Dark 140-150 Bright Stocks	.47	.47	.47

LOS ANGELES EXPORT PRICES

	Apr. 29		Apr. 22		Apr. 15	
Kerosene, water white	.03¾	.04¼	.03¾	.04¼	.03¾	.04¼
*U. S. Motor Gasoline, 53-55, 437 e.p.	.06½	.06¾	.06¼	.06¾	.06¼	.06¾

*Prices on coastwise shipments.

CRUDE OIL PRICES

OKLAHOMA, KANSAS, NORTH AND EAST CENTRAL TEXAS

Oklahoma City—Same as other Mid-Continent price schedule except Empire Pipe Line Co. posted all oil 40 gravity and above at $1.43 on April 10.
Corsicana heavy (April 10, 1930).....$ .80
Other fields .....See gravity table

*Posted by Magnolia Petroleum Co.

TEXAS PANHANDLE

Gray County, Wheeler County and Carson-Hutchinson Counties—See gravity table.

In Noel-McConnell district Prairie Oil & Gas Co. posted April 10, below 30 degrees, 75½ cents, with 5-cent differential upward to 34-34.9, $1.00½, and then a 3-cent differential upward to 44 and above at $1.35½.

WEST TEXAS

Iatan* .....Same as North Texas
Crane-Upton-Crockett, Pecos, Winkler Mitchell and Ector .....See gravity table, Column 3
Howard and Glasscock .....See gravity table, Column 9
Chalk† (April 10, 1930) .....$ .75

*Includes Westbrook Field. †Posted by Humble Oil & Refining Co.

ARKANSAS-NORTH LOUISIANA

Smackover, below 24 gravity (April 11, 1930 .....$ .90
Smackover, 24 gravity and above (April 11, 1930) 1.05
Carterville, Sarepta and Cotton Valley, below 36 gravity (April 11, 1930)... .85
Bellevue (April 11, 1930) 1.15
Urania (April 11, 1930) ..... .95
East El Dorado (April 11, 1930) ..... .90
Other fields .....See gravity table

Cotton Valley crude about 36 gravity takes same gravity price schedule as shown for North Louisiana and Arkansas crude in Mid-Continent gravity price table.

Note—Smackover, Cotton Valley and Bellevue posted by Standard Oil Co. of Louisiana and Magnolia Petroleum Co.; Urania posted by Louisiana Oil Refining Corp.; East El Dorado posted by Magnolia Petroleum Co.

GULF COAST

Grade A (April 10, 1930)* $1.10
Grade B, 25 degrees and upward .....See gravity table
Jennings, La. (April 10, 1930)† 1.10
Refugio (light) .....Same as Grade B
Refugio (heavy) (April 10, 1930)‖ ... .85
Sorrento (April 10, 1930)‡ 1.10
Markham (April 10, 1930)§ ..... .85
High Island (April 10, 1930)¶ ..... .95

*Humble Oil & Refining Co. †Gulf Pipe Line Co. ‡Sun Pipe Line Co. §The Texas Pipe Line Co. ¶Posted by Gulf Pipe Line Co. ‖Humble Oil & Refining Co. and Gulf Coast Pipe Line Co.

ROCKY MOUNTAIN STATES

Ohio Oil Co.-Midwest Refining Co.
(Effective April 11, 1930)
Iles (April 11, 1930):
33 gravity and above .....$ .97

(Continued on Page 136)

CRUDE OIL GRAVITY TABLE

Gravity—	Okla.-Kans.	N. C. Texas, No. La., Arkansas Crane, Upton, Ector, Crockett, Winkler, Pecos, Mitchell (West Texas); Lea, N. Mex.	Wheeler County (Texas Panhandle)	Gray County (Texas Panhandle)	Carson and Hutchinson (Texas Panhandle)	Salt Creek, Wyo.	Stephens, Ark.	Howard-Glasscock (West Texas)	Grade B Gulf Coast and Refugio, Texas
	1	2	3	4	5	6	7	8	9	10
Below 25	.75	.72	.65	.....	.....	.....	.....	....	.65	1.00
25 to 25.9	.80	.77	.68	.....	.....	.....	.....	....	.68	1.03
26 to 26.9	.85	.82	.71	.....	.....	.....	.....	....	.71	1.06
27 to 27.9	.90	.87	.74	.....	.....	.....	.....	.76	.74	1.09
28 to 28.9	.95	.92	.77	.....	.75½	.....	.....	.81	.76	1.12
29 to 29.9	1.00	.97	.80	.75½	.80½	.....	1.00	.86	.78	1.15
30 to 30.9	1.05	1.02	.83	.80½	.85½	.....	1.05	.91	.80	1.18
31 to 31.9	1.10	1.07	.86	.85½	.90½	.77½	1.10	.96	.82	1.21
32 to 32.9	1.15	1.12	.89	.90½	.95½	.82½	1.15	1.01	.84	1.24
33 to 33.9	1.18½	1.17	.92	.95½	1.00½	.87½	1.18½	.....	.86	1.27
34 to 34.9	1.22	1.22	.95	1.00½	1.05½	.92½	1.22	.....	.88	1.30
35 to 35.9	1.25½	1.25½	.98	1.04	1.09	.96	1.25½	.....	.90	1.33
36 to 36.9	1.29	1.29	1.01	1.07½	1.12½	.99½	1.29	.....	.92	1.36
37 to 37.9	1.32½	1.32½	..	1.11	1.16	1.03	1.32½	.....	....	1.39
38 to 38.9	1.36	1.36	..	1.14½	1.19½	1.06½	.....	.....	....	1.42
39 to 39.9	1.39½	1.39½	..	1.18	1.23	1.10	.....	.....	....	1.44
40 to 40.9	1.43	1.43	..	1.21½	1.26½	1.13½	.....	.....	....	1.46
41 to 41.9	1.46½	1.46⅝	..	1.25	1.30	1.17	.....	.....	....	1.48
42 to 42.9	1.50	1.50	..	1.28½	1.33½	1.20½	.....	.....	....	1.50
43 to 43.9	1.53½	1.53½	..	1.32	1.37	1.24	.....	.....	....	1.52
44 and above	1.57	1.57	..	1.35½	1.40½	1.27½	.....	.....	....	1.54

Column 1, Note—Above prices posted April 10, 1930, by Carter Oil Co. (beginning at 25 degrees and below), and by the Prairie Oil & Gas Co. and other purchasers beginning at 24 degrees and below, the Magnolia Petroleum alone excepted. The Magnolia on April 10 posted the following prices: Below 26 gravity, 70 cents; 26-26.9, 76 cents; 27-27.9, 82 cents; 28-28.9, 88 cents; 29-29.9, 95 cents; 30-30.9, $1.02. From 31 up to and including 44 degrees and above Magnolia followed Carter price schedule, but made its whole schedule apply to its gravity purchases in Kansas, Oklahoma and North Central Texas alike.

Column 2—Humble Oil & Refining Co. posted above prices April 10, 1930, and was followed by all other companies in Texas except Magnolia which posted a different price schedule than Humble up to 33.9 degrees (see note in paragraph just above). The Texas Company posted North Louisiana and Arkansas on April 10, and Standard of Louisiana posted on April 11 followed by other companies, but Magnolia's price schedule begins with below 28 gravity at 87 cents. North Central Texas includes North Texas, Ranger, Mexia, Powell, Richland, Wortham, Lytton Springs, Currie, Nocona, Moran, and Corsicana light; Arkansas and Louisiana pools include Caddo, Bull Bayou, Crichton, Cotton Valley, above 36 gravity, DeSoto, Haynesville, Homer, El Dorado, and Rainbow.

Column 3—Posted by Humble Oil & Refining Co. April 10, 1930, and Magnolia Petroleum Co. April 10, 1930.

Columns 4, 5 and 6—Humble Oil & Refining Co., Prairie Oil & Gas Co., Magnolia Petroleum Co., April 10, 1930.

Column 7—Mid-West Refining Co., April 11. All crude over 37 gravity $1.32½.

Column 8—Louisiana Oil & Refining Co., April 11.

Column 10—Humble Oil & Refining Co., April 10. Magnolia Petroleum Co. posted below 25 gravity 65 cents with 3-cent differential upward to and including 36 and above, which was posted at $1.01.

CALIFORNIA CRUDE OIL PRICES

Standard Oil Co.-Union Oil Co. (Effective March 11, 1930)

Gravity—	Seal Beach, Salt Lake, Newport, Summerland, Los Angeles, Fullerton, Richfield, Torrance, Olinda-Brea, Alamitos Heights, Huntington Beach, Signal Hill, Inglewood	Whittier, La Habra, Coyote Hills	Midway-Sunset, Elk Hills, Lost Hills, Belridge, Buena Vista Hills	Montebello	Santa Fe Springs (Nov. 8)	Santa Maria, Coalinga	Wheeler Ridge, Fruitvale	Orcutt, Ventura, Rincon	Ventura Avenue (Nov. 8)	Elwood Terrace	Athens, Rosecrans, Dominguez
	1	2	3	4	5	6	7	8	9	10	11
14 to 14.9	.70	.70	.55	.70	....	.55	.55	.55	.70	....	....
15 to 15.9	.70	.70	.55	.70	....	.55	.55	.55	.70	....	....
16 to 16.9	.70	.70	.55	.70	....	.55	.55	.55	.70	....	....
17 to 17.9	.70	.70	.55	.70	....	.55	.55	.55	.70	....	....
18 to 18.9	.76	.76	.62	.71	....	.62	.62	.65	.76	....	....
19 to 19.9	.82	.82	.70	.77	....	.70	.70	.70	.82	....	....
20 to 20.9	.88	.87	.78	.83	....	.78	.78	.78	.88	....	....
21 to 21.9	.94	.93	.86	.90	.92	.86	.86	.90	.91	....	....
22 to 22.9	1.00	.98	.94	.97	.95	.94	.94	.95	.94	....	....
23 to 23.9	1.07	....	1.02	1.05	1.01	1.02	1.02	1.02	1.00	....	....
24 to 24.9	1.14	....	1.09	1.11	1.07	1.07	1.07	1.10	1.07	....	1.14
25 to 25.9	1.21	....	1.16	1.17	1.13	1.12	1.12	1.13	1.14	....	1.19
26 to 26.9	1.28	....	1.23	1.22	1.19	1.17	1.17	1.26	1.21	....	1.24
27 to 27.9	1.35	....	1.30	1.29	1.25	1.23	1.22	....	1.28	....	1.29
28 to 28.9	1.42	....	1.35	1.35	1.31	1.27	....	....	1.35	....	1.34
29 to 29.9	1.46	....	1.41	1.38	1.37	1.31	....	....	1.39	....	1.39
30 to 30.9	1.50	....	1.47	1.41	1.43	1.35	....	....	1.43	....	1.45
31 to 31.9	1.55	....	1.53	....	1.49	1.39	....	....	1.48	....	1.51
32 to 32.9	1.60	....	1.59	....	1.55	1.43	....	....	1.53	....	1.57
33 to 33.9	1.65	....	1.65	....	1.60	1.47	....	....	1.59	....	1.64
34 to 34.9	1.70	....	....	....	1.65	1.51	....	....	1.65	1.32	1.71
35 to 35.9	1.75	....	....	....	1.70	1.55	....	....	1.71	1.39	1.78
36 to 36.9	1.80	....	....	....	1.75	....	....	....	....	1.46	1.84
37 to 37.9	1.85	....	....	....	1.80	....	....	....	....	1.53	1.90
38 to 38.9	1.90	....	....	....	1.85	....	....	....	....	1.60	1.96
39 to 39.9	....	....	....	....	1.90	....	....	....	....	1.66	2.02
40 to 40.9	....	....	....	....	....	....	....	....	....	1.72	2.08
41 to 41.9	....	....	....	....	....	....	....	....	....	1.78	2.14
42 to 42.9	....	....	....	....	....	....	....	....	....	1.84	2.20

Kern River, Newhall-McKittrick, Mount Poso and Round Mountain 11 to 13.9 gravity, 50 cents; 14 gravity and above, 55 cents, effective March 11. On March 11, the Union Co. posted Midway-Sunset, Elk Hills, Buena Vista, Lost Hills and Coalinga crude as follows: 11 to 13.9 gravity at 50 cents.

Column 1—Signal Hill, Seal Beach, Huntington Beach and Alamitos Heights crude, 14 to 32.9 gravity, inclusive; Richfield, Olinda-Brea and Fullerton, 14 to 30.9 gravity; Torrance and Inglewood, 14 to 28.9 gravity.

Column 2—Whittier crude, 14 to 22.9 gravity; Coyote Hills, 14 to 30.9 gravity.

Column 3—Kern River, Newhall and McKittrick, 11 to 19.9 gravity; Midway-Sunset, Buena Vista and Elk Hills, 11 to 33.9 gravity; Lost Hills, 11 to 34.9 gravity; oil below 14 gravity posted at 50 cents.

Column 6—Oil below 14 gravity posted at 45 cents.

Columns 8 and 9—Posted by Union Oil Co. only.

Kettleman Hills, 55 gravity and above, $1.65 (posted by Standard Oil Co. of California).

TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns Apr. 29

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

STANDARD OIL CO. (INDIANA)

	Gasoline Tank wagon	Gasoline Service station	Gasoline incl'ds tax of	Kero. tank wagon
Chicago†	18.0	19.0	3.0	11.0
Decatur, Ill.	18.2	19.2	3.0	13.1
E. St. Louis	17.4	18.4	3.0	12.2
Joliet	18.4	19.4	3.0	13.3
Peoria	18.2	19.2	3.0	13.1
Quincy	18.2	19.2	3.0	12.9
Davenport, Ia.	18.5	19.5	3.0	13.3
Des Moines	18.5	19.5	3.0	13.3
Keokuk	18.5	19.5	3.0	13.3
Sioux City	18.1	19.1	3.0	12.9
Duluth, Minn.	19.5	20.5	3.0	13.9
Mankato	19.1	20.1	3.0	13.7
Minneapolis	19.2	20.2	3.0	13.9
LaCrosse, Wis.	18.2	19.2	2.0	14.0
Milwaukee	17.1	18.1	2.0	12.9
Madison	17.3	18.3	2.0	13.1
Detroit, Mich.	18.8	19.8	3.0	14.7
Grand Rapids	18.7	19.7	3.0	14.6
Saginaw	18.9	19.9	3.0	14.8
Evansville, Ind.	19.0	20.0	4.0	14.0
Fort Wayne	19.4	20.4	4.0	14.4
Indianapolis	19.2	20.2	4.0	14.2
South Bend	19.4	20.4	4.0	14.4
Fargo, N. D.	20.9	21.9	3.0	15.9
Huron, S. D.	19.3	21.3	4.0	14.7
Sioux Falls	19.1	20.1	4.0	14.4
K. C., Mo.*	17.9	18.9	3.0	11.6
Springfield*	17.8	18.8	3.0	12.5
St. Louis*	16.9	17.9	2.5	12.3
St. Joseph	17.5	18.5	2.0	12.2
Wichita, Kans.	16.8	15.8	3.0	11.8
Bartlesville, Ok.	17.5	18.5	4.0	11.5

*State tax 2 cents; remainder city tax.

†Effective February 20, discounts on Q.D.A. in Chicago district 2 cents off service station price on purchases of 500 gallons or more per month and 4 cents on purchases of 1,000 gallons or more per month.

The following quantity discounts from the service station price are allowed on monthly sales of gasoline; 2,000 gallons or less, 2 cents; more than 2,000 and less than 6,000 gallons, 2½ cents; more than 6,000 gallons, 3 cents; 100,000 gallons or more, 4½ cents. Discounts are allowed each month and they are not cumulative. Delivery tickets showing date and quantity delivered must be sent to the seller before the tenth of the month to secure the discount on the previous month's purchases.

NAPHTHA

	Tank wagon	Tank car
Oleum spirits	14.7	12.9
V. M. & P. Naphtha	16.7	13.9
Cleaner's naphtha	17.0	14.9
Stanisol	17.0	15.4

Tank wagon prices f.o.b. Chicago; tank car prices f.o.b. Whiting.

STANOLIND FURNACE OIL IN CHICAGO

Less than 100 gallons	9.0
100 to 349 gallons	8.0
350 gallons or more	7.5

Note—Outside Chicago furnace oil discount of 1 cent per gallon is given on deliveries of 100 to 349 gallons and 1½ cents on deliveries of 350 gallons or more.

SOUTHWESTERN DISTRICT

Magnolia Petroleum Co.

	Gasoline Tank wagon	Gasoline Service station	Gasoline incl'ds tax of	Kero. tank wagon
Dallas, Tex.	16.0	20.0	4.0	12.0
Fort Worth	16.0	19.0	4.0	12.0
Houston	15.0	19.0	4.0	11.0
San Antonio	15.0	19.0	4.0	11.0
El Paso	16.0	20.0	4.0	13.0
Texarkana	14.0	14.0	4.0	12.0
Muskogee*	16.0	19.0	4.0	10.0
Okla. City*	16.0	19.0	4.0	10.0
Tulsa*	16.0	20.0	4.0	10.0
Ft. Smith, Ark.	15.0	17.0	5.0	12.0
Little Rock	18.0	19.0	5.0	13.0

*Gasoline tank wagon price to dealers 2 cents under posted tank wagon.

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline Tank wagon	Gasoline Service station	Gasoline incl'ds tax of	Kero. tank wagon
Denver, Colo.	17.0	20.0	4.0	15.5
Pueblo	18.0	21.0	4.0	15.5
Grand Junction	23.0	26.0	4.0	19.0
Casper, Wyo.	19.0	22.0	4.0	14.0
Cheyenne	20.5	23.5	4.0	15.5
Butte, Mont.	24.5	27.5	5.0	20.0
Helena	24.5	27.5	5.0	20.0
Salt Lake, Utah	20.0	20.0	3.5	17.0
Albu'que, N. M.	21.0	24.0	5.0	17.0
Boise, Idaho	23.5	26.5	5.0	19.0
Twin Falls	23.5	27.5	5.0	19.0

PENNSYLVANIA—DELAWARE AND PART NEW ENGLAND

The Atlantic Refining Co.

	Gasoline Tank wagon	Gasoline Service station	Gasoline incl'ds tax of	Kero. tank wagon
Pittsburgh, Pa.	15.0	*21.0	...	13.0
Philadelphia	15.0	*21.0	...	13.0
Scranton	15.0	*21.0	...	13.0
Allentown	15.0	*21.0	...	13.0
Altoona	15.0	*21.0	...	13.0
Erie	15.0	*19.0	...	13.0
Dover, Del.	18.0	20.0	3.0	13.0
Wilmington	18.0	20.0	3.0	13.0
Springf'd, Mass.	16.5	18.5	2.0	12.5
Worcester	16.3	18.3	2.0	12.3
Boston	15.5	17.5	2.0	11.5
Providence, R.I.	15.7	17.7	2.0	11.7
Hartford, Conn.	16.5	18.5	2.0	12.5
New Haven	16.6	18.6	2.0	12.6

*Includes tax of 4 cents. Pennsylvania tax is collected by the dealer and paid by him direct to the State. The Atlantic Refining Co. recognizes a 2-cent per gallon discount on gasoline from its posted tank wagon markets on sales to dealers for purposes of resale. The Atlantic Refining Co. also recognizes a maximum discount of 2 cents per gallon on gasoline to commercial accounts under contract for one year.

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline Tank wagon	Gasoline Service station	Gasoline incl'ds tax of	Kero. tank wagon
Albany, N. Y.	17 6	19.6	2 0	15.6
New York*	16 3	18 3	2 0	14.3
Buffalo	17 8	19 8	2.0	14 8
Rochester	18.0	20 0	2 0	14 0
Syracuse	18 8	20.8	2 0	14 8
Boston, Mass.	16 5	18 5	2 0	13.5
Augusta, Me.	19 8	21.8	4 0	14.8
Manch't'r, N. H.	19.4	21 4	4 0	14.4
Burlington, Vt.	19.6	21.6	4 0	15 3

*Prices in steel barrels.

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline Tank wagon	Gasoline Service station	Gasoline incl'ds tax of	Kero. tank wagon
Atlanta, Ga.	20.0	21.0	4.0	15.5
Augusta	19.0	21.0	4.0	15.5
Macon	19.0	21.0	4.0	14.0
Savannah	18.0	20.0	4.0	14.0
Birm'ham, Ala.	21.0	23.0	5.0	14.5
Mobile	18.0	18.0	4.0	13.5
Montgomery	21.0	23.0	4.0	15.0
Clarks'le, Miss.	19.0	21.0	5.0	12.5
Jackson	20.0	22.0	5.0	13.0
Natchez	19.5	21.5	5.0	13.0
Gulfport	21.0	23.5	5.0	13.0
Vicksburg	19.5	21.5	5.0	13.0
Jack'ville, Fla.	20.0	22.0	6.0	14.0
Miami	21.0	23.0	6.0	14.0
Pensacola	18.0	20.0	6.0	13.5
Tampa	20.0	22.0	5.0	13.0
Lexington, Ky.	18.0	20.0	5.0	14.5
Covington	20.0	21.0	5.0	14.5
Louisville	19.0	21.0	5.0	13.0
Ashland	19.0	21.0	5.0	15.0
Catlettsburg	19.0	21.0	5.0	15.0

In addition to the state tax of 4 cents on gasoline, Montgomery has city tax of 1 cent on gasoline and one-half cent on kerosene. Kerosene prices in Georgia include 1-cent tax. In Florida, an inspection fee of 0.125 cent; in Alabama, an inspection fee of one-half cent on kerosene and one-fourth cent on gasoline. Pensacola, Birmingham and Mobile taxes include 1-cent city levy. Gulfport tax includes privilege tax of 2 cents in addition to state tax.

Effective April 2, price to dealers 2 cents under posted tank wagon price.

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline Tank wagon	Gasoline Service station	Gasoline incl'ds tax of	Kero. tank wagon
Atlantic City	16.5	18.5	2.0	13.5
Newark, N. J.	15.5	17.5	2.0	12.5
Annapolis, Md.	18.0	20.0	4.0	13.0
Baltimore	17.2	19.2	4.0	10.5
Cumberland	19.0	21.0	4.0	14.0
Washington	15.7	17.7	2.0	12.7
Danville, Va.	19.8	21.8	5.0	13.8
Norfolk	18.3	20.3	5.0	12.0
Petersburg	19.3	21.3	5.0	13.3
Roanoke	20.0	21.0	5.0	14.0
Richmond	18.7	20.7	5.0	12.7
Charles'n, W.Va.	18.5	20.5	4.0	12.5
Keyser	19.1	21.1	4.0	14.1
Parkersburg	17.2	19.2	4.0	11.2
Wheeling	18.4	20.4	4.0	12.4
Charlotte, N. C.	19.3	20.3	5.0	14.3
Hickory	20.8	22.8	5.0	14.8
Mt. Airy	20.5	22.5	5.0	14.5
Salisbury	20.7	20.0	5.0	14.7
Charleston, S. C.	19.3	21.3	6.0	12.3
Columbia	21.2	23.2	6.0	14.2

A 2-cent per gallon discount off the gasoline tank wagon price is offered to dealers.

PACIFIC COAST TERRITORY

Standard Oil Co. (California)

	Gasoline Tank wagon	Gasoline Service station	Gasoline incl'ds tax of	Kero. tank wagon
San Francisco	22.0	23.0	3.0	15.5
Los Angeles	21.5	22.5	3.0	15.5
Reno, Nev.	27.0	28.0	4.0	19.0
Portland, Ore.	23.5	23.5	4.0	16.5
Seattle, Wash.	22.5	22.5	3.0	16.5
Tacoma	22.5	23.5	3.0	16.5
Spokane	26.5	26.5	3.0	20.5
Phoenix, Ariz.	18.0	22.0	4.0	20.0

Above prices are at company's plant or depots as company does not operate stations. A 6-cent per gallon discount is given dealers and customers taking tank wagon lots except in Phoenix where discount is 1 cent.

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline Tank wagon	Gasoline Service station	Gasoline incl'ds tax of	Kero. tank wagon
Omaha	19 25	21.25	4.0	13.25
McCook	29.75	22.75	4.0	14.75
Norfolk	19 75	21.75	4.0	13.75
N. Platte	20.75	22.75	4.0	14.50
Scottsbluff	20.75	22.75	4.0	14.25

OHIO

Standard Oil Co. (Ohio)

	Gasoline Tank wagon	Gasoline Service station	Gasoline incl'ds tax of	Kero. tank wagon
Ohio points*	19.0	20.0	4.0	†13.0

*Dealers and commercial accounts 2 cents under tank wagon.

†Service station price 15 cents.

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline Tank wagon	Gasoline Service station	Gasoline incl'ds tax of	Kero. tank wagon
N. Orleans, La.*	16 0	16.0	5.0	12.0
Baton Rouge	16.0	17.0	4.0	14.0
Alexandria	17.0	17.0	4.0	14.0
Lafayette*	18.0	20.0	5.0	14.0
Lake Charles*	16.0	16.0	5.0	14.0
Shreveport	14.0	17.0	4.0	14.0
Knoxv'le, Tenn.	20.0	22 0	5.0	16.0
Memphis	18.0	20.0	5.0	12.5
Chattanooga	20.0	22.0	5.0	16.0
Nashville	19.0	21.0	5.0	16.0
Bristol	20 0	22 0	5.0	14.0
Lt. Rock, Ark.	18.0	19.0	5.0	13.0

*Includes city tax of 1 cent. Louisiana kerosene prices include 1-cent state tax. New Orleans kerosene price also includes 1-cent city tax.

TANK WAGON CHANGES

Standard Oil Co. of New Jersey reduced the gasoline station price 0.7 cent in Salisbury, N. C., April 2 to 20.0 cents. On the same date it advanced the kerosene price 1 cent in Norfolk, Va., to 12 cents.

Standard Oil Co. of California advanced the gasoline tank wagon prices at practically all points in which the company markets its products and established a 6-cent discount on tank truck deliveries except at Phoenix, Ariz., where a 1-cent discount is given. This schedule was adopted April 22.

Standard Oil Co. of Kentucky reduced the tank wagon and station prices 2 cents in Savannah, Ga., April 14 to 18 cents and 20 cents. On April 17 the gasoline tank wagon and station prices were advanced 1 cent in Covington, Ky., to 20 cents and 21 cents.

Standard Oil Co. of Louisiana advanced the gasoline station price 1 cent in Shreveport, La., to 17 cents. On April 23 the gasoline station price was reduced 2 cents in Alexandria, La., to 17 cents.

Standard Oil Co. of New York advanced the gasoline tank wagon and station prices and kerosene 1 cent at all points in the company's marketing territory on April 29.

OFFICES MOVED

The Cranfill-Reynolds Co. has removed its offices from 715 Fidelity Union Building, Dallas, to 720 Niels Esperson Building, Houston.

CRUDE OIL PRICES

(Continued from Page 135)

Under 33 gravity	.75
Dutton Creek (Feb. 15, 1930)	1.25
Rock Creek, Wyo.	1.35
Salt Creek	See gravity table
Big Muddy	1.38
Grass Creek, heavy (July 27, 1928)	.90
Grass Creek, light	1.56
Mule Creek (May 21, 1929)	1.20
Elk Basin	1.55
Lance Creek	1.63
Poison Spider (March 14, 1927)	1.00
Notches (March 14, 1927)	.65
Rex Lake (February 22)	1.10
Osage	1.63
Lost Soldier (contract, May 22)	1.06
Hamilton Dome (March 14, 1927)	.85
Greybull (Feb. 15, 1930)	1.45
Four Bear (May 21, 1929)	.85
Cat Creek	1.56
Pondera (Montana) (Feb. 15, 1930)	1.80
Sunburst (Montana) (Feb. 15, 1930)	1.65
Torchlight (May 21, 1929)	1.65
Hogback (Feb. 15, 1930)	1.40
Artesia (New Mexico)	1.05
Lea County	See gravity table

Note—Salt Creek, Osage, Cat Creek, Greybull and Hogback posted by Midwest Refining Co., and the remainder by the Ohio Oil Co. Both companies posted Grass Creek light and Elk Basin.

SOUTH CENTRAL AND SOUTHWEST TEXAS

Darst Creek (April 10, 1930)*	$1.15
Luling (April 10, 1930)	.85
Mirando (April 10, 1930)†‡	.85
Pettus (April 10, 1930)§	1.40
Salt Flat (April 10, 1930)§	1.15
Thrall‡	...
Lytton Springs (Lockhart) See gravity table	
Somerset (April 10, 1930):	
Below 33 gravity	$1.15
33 to 33.9 gravity	1.17
34 to 34.9 gravity	1.19
35 to 35.9 gravity	1.21
36 to 36.9 gravity	1.23
37 to 37.9 gravity	1.25
38 gravity and above	1.27

*Posted by Humble Oil & Refining Co. and Magnolia Petroleum Co. †Magnolia Petroleum Co., Humble Oil & Refining Co., Crown Central Pipe Line Co. ‡Thrall prices same as North Central Texas less 19½ cents per cwt. freight. §Humble Oil & Refining Co.

EASTERN STATES

Joseph Seep Purchasing Agency

(Effective Feb. 17, 1930)

Penna Grade Oil in New York Transit Lines (New York)	$2.80
Bradford District Oil in National Transit Lines (Pennsylvania)	2.80
Penna Grade Oil in National Transit Lines (Pennsylvania)	2.80
Penna Grade Oil in Southwest Pennsylvania Lines (West Virginia)	2.75
Penna Grade Oil in Eureka Pipe Line Lines (Pennsylvania)	2.65
Penna Grade Oil in Buckeye Pipe Line Lines (Ohio)	2.45
Cabell Grade Oil in Eureka Pipe Line Lines (West Virginia) (May 12,1929)	1.75
Corning 35-cent Grade Oil in Buckeye Pipe Line Co.'s Line (Feb. 17, 1930)	1.55
Corning 25-cent Grade Oil in Buckeye Pipe Line Co.'s Lines (Feb. 17, 1930)	1.65
Somerset Oil in Eureka Pipe Line Lines (Kentucky) (April 11, 1930)	1.31
Somerset Oil in Cumberland Pipe Line Lines (Kentucky) (April 11, 1930)	1.47
Ragland Grade Oil in Cumberland Pipe Line Lines (Kentucky) (Jan. 29)	.60
Wayne District Oil in Cumberland Pipe Lines (April 11, 1930)	1.34

MIDDLE WESTERN STATES

Ohio Oil Co.

(Effective April 11, 1930)

Lima	$1.70
Wooster	1.80
Illinois	1.55
Indiana	1.47
Princeton	1.65
Plymouth	1.23
Waterloo (Nov. 17, 1926)	1.35
Western Kentucky	1.55
Dundee, Mich. (April 16)‖	
	Same as Mid-Continent gravity scale
Upper and Lower Traverse sands, Mich. (April 16)‖	
	Same as Mid-Continent gravity scale
Midland, Mich. (April 29)*	1.35
Saginaw, Mich., Saginaw sand (Feb. 10)†	1.89
Saginaw, Mich., Berea sand (Feb. 10)	1.79
Cumberland, Clay, Barren, Clinton and Monroe Counties, Kentucky (March 15)‡	1.80
Oil in line in Stoll Oil Refinery Co. in Oil City, Ky. (April 18)§	1.15
Oil Springs (Canada) (April 11, 1930)¶	2.17
Petrolia (Canada) (April 11, 1930)¶	2.10

*Posted by Pure Oil Co. †Posted by Sun Oil Co. ‡Posted by Paragon Development Co. §Posted by Stoll Oil Refining Co. ¶Posted by Imperial Oil Co., Ltd. ‖Posted by Standard of Indiana for boat shipment. Local refiners posted Mid-Continent prices on April 11.

MEXICAN CRUDE

Panuco*	$ .67

*Based on February transactions.

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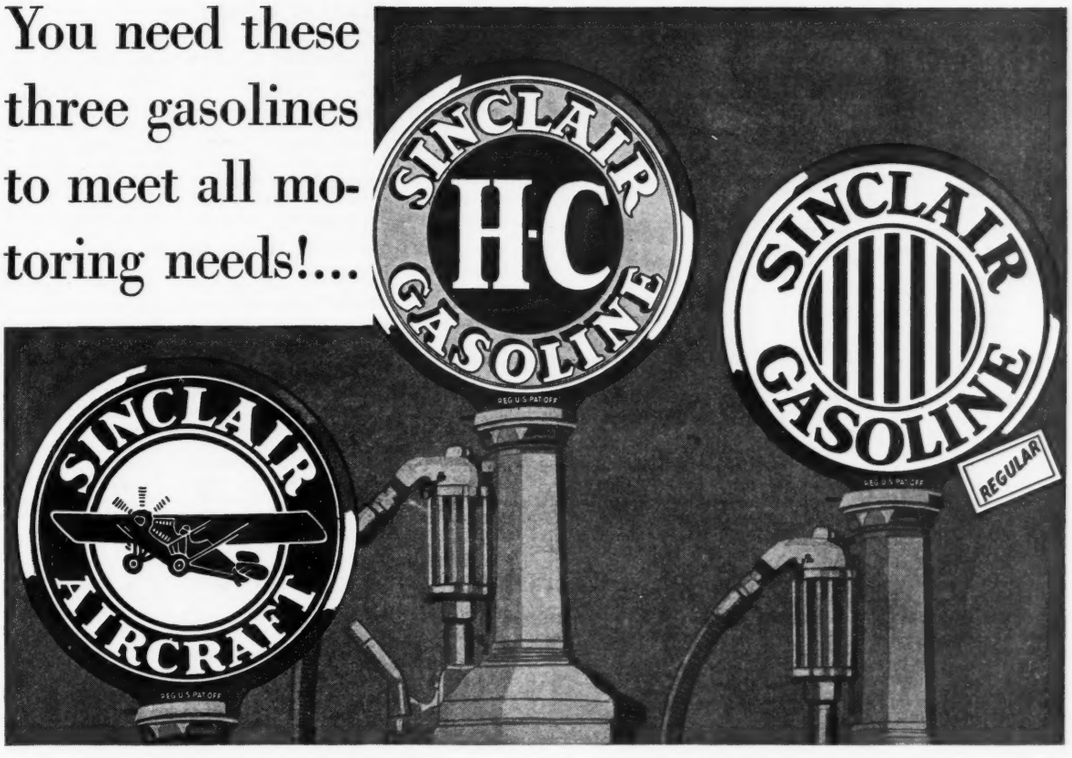

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Standard Oil Co., N. Y., Annual Report

Phillips Petroleum Co. Issues Yearly Statement. Other Dividend Announcements and Market Changes

President Frank Phillips of the Phillips Petroleum Company, stated at the annual meeting at Bartlesville, Okla., that considering conditions within the industry, the year 1929 had been one of the most successful in the company's history both from the viewpoint of earnings and expansion. Earnings have amounted to $5.39 per share on the average outstanding stock for the year. The company has continued its program of diversifying its situation and all departments of the business showed a profit for the year. He stressed the growing importance of the company's utilities divisions which are being rapidly extended, and the natural gas division, citing the growth in sales of natural gas from 14,000,000,000 feet in the first quarter five years ago to 46,000,000,000 feet in the first quarter of 1930. The company's natural gas reserves, he announced, cover wide areas of proven territory and the markets for this product are continually increasing and being extended.

Earnings for the first quarter of 1930 compared with the first quarter of 1929 were as follows:

	First quarter 1930	First quarter 1929
Gross income	$11,931,003.18	$8,516,441.53
Expense	7,602,357.73	4,903,561.97
Net income before depreciation, depletion, retirements and other amortization	4,328,645.45	3,612,879.56
Depreciation, depletion, retirements and other amortization	2,723,801.58	
Net profit	1,604,843.87	

"Heretofore," President Phillips said, "our quarterly statements have been published showing income before depletion, depreciation and other amortization which items have not been computed until the end of the year. However, beginning with this quarter all future earnings statements will show income both before and after such charges. Gross income in the 1930 quarter was nearly 40 per cent in excess of the 1929 quarter, while net income before charges was approximately 20 per cent greater. Prices of petroleum and its products were considerably less in the first quarter of 1930 than in the corresponding period of last year and the increased profits of the company were attributed to the wider scope of activity. Prices of petroleum and its products are improving and are now higher than during the first quarter, the result of which will be reflected in a better second quarter."

Mr. Phillips further stated that the company in its marketing expansion program is negotiating for the outright purchase of a number of units operating within its territory.

Sun Oil

Sun Oil Co. declared the regular quarterly dividends of 25 cents on the common, payable June 16 to stock of record May 26, and $1.50 on the preferred, payable June 2 to stock of record May 10.

Prairie Pipe Line

Prairie Pipe Line Co. and subsidiary report for quarter ended March 31, 1930, net profit of $5,222,000 after taxes and charges, equivalent to $1.29 a share (par $25) on 4,050,000 shares of stock. This compares with $5,400,000 or $1.33 a share in the first quarter of 1929.

Transcontinental Oil

Transcontinental Oil Co. reports for quarter ended March 31, 1930, profit of $1,173,869 after interest, depreciation, dry holes, leases and properties abandoned charged off or provided for by reserve, but before Federal taxes, comparing with profit of $527,551 in first quarter of 1929. Capital stock consists of 3,230,000 no-par shares.

Lion Oil Refining

Lion Oil Refining Co. reports for quarter ended March 31, 1930, profit before depreciation and depletion of $329,152. Net profit after all charges was $1,714 comparing with net loss of $15,819 in first quarter of 1929. Capital stock consists of 270,000 no-par shares.

Mid-Continent Petroleum

Report of Mid-Continent Petroleum Corp. and subsidiaries for quarter ended March 31, 1930, shows net profit of $1,013,279 after charges, surrendered and abandoned leaseholds, depreciation, depletion, Federal taxes, etc., equivalent to 54 cents a share on 1,857,912 shares of no-

TRANSACTIONS IN OIL SHARES ON NEW YORK STOCK EXCHANGE

Quotations Compiled by Francis, Bro. & Co., Members of the New York Stock Exchange and Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.

1930 High	1930 Low	Week ended April 23 Sales	Week ended April 23 High	Week ended April 23 Low	Week ended April 23 Close	Stocks		Outstanding capital	Par value	Div. rate	Last paid	1927 High	1927 Low	1928 High	1928 Low	1929 High	1929 Low
29¾	18	500	27	26	26½	Amerada Corp.	(sh)	922,075	N.P.	50cQ	1-31-30	37⅝	27⅝	43⅞	27⅛	42⅝	17½
37	20½	1,700	34¾	33½	34	American Republic Corp.	(sh)	209,180	N.P.	.....	3-20-29	82½	35⅛	85	51⅛	64¾	12½
50¼	32½	10	48	48	48	Associated Oil		$57,260,300	$25	50cQ	12-31-29	50¼	35	53⅜	37½	47¼	34½
51⅜	36¼	10,300	46½	45	46⅜	Atlantic Refining		$66,763,775	$25	25cQ	12-16-29	131⅜	104	66⅜	50	77⅜	30
34	20½	11,200	31⅞	31	31⅝	Barnsdall Corp.		$56,546,600	$25	50cQ	12-7-29	35½	20¾	53	20	49⅛	20
30¼	19½	17,000	29⅞	28¾	29½	Continental Oil of Delaware	(sh)	4,741,554	N.P.	.....	3-31-27	..	..	..	..	47⅛	18
71⅛	49¼	11,400	66⅝	64⅝	65⅞	General Asphalt	(sh)	413,333	N.P.	50cQ	.....	96¾	65	94⅞	68	94¾	42¼
114	52¼	15,500	113¾	108¼	110	Houston Oil		$24,968,600	$100	.....	.....	175¾	60⅛	167	79	109	26
32	20¼	9,400	30¾	29½	30⅛	Independent Oil & Gas	(sh)	1,362,295	N.P.	50cQ	1-31-30	32¾	17⅝	38⅜	21¾	39⅜	17¾
28¾	17¾	17,900	23⅞	22⅝	23¼	Indian Refining		$12,565,070	$10	.....	5-31-24	12⅛	7⅝	39⅝	9	53	13⅛
26½	21¼	300	25⅜	25	25⅜	Lago Oil & Transport	(sh)	3,992,122	N.P.	.....	5- 1-27	37¾	20½	39⅛	27⅜	38⅜	16½
11¼	8	2,800	10⅞	10¼	10⅞	Louisiana Oil Refining	(sh)	1,190,063	N.P.	.....	.....	18¼	10	19¾	9⅜	18	7
10⅜	5⅛	700	9	8⅛	8⅛	Maracaibo Oil	(sh)	330,000	N.P.	.....	.....	22⅜	12	25½	12½	18½	5⅛
37	16¼	51,600	36¼	34	36	Mexican Seaboard	(sh)	1,244,383	N.P.	.....	12-15-20	9¼	3	72	4⅝	69⅜	9¼
33	23½	5,900	32	30¾	32	Mid-Continent Petroleum	(sh)	1,857,912	N.P.	50cQ	12-15-29	39⅜	25½	44½	25⅛	39⅞	22⅛
2½	⅞	600	2	1¾	2	Middle States, ctfs.		$23,736,130	$10	.....	7- 1-23	3¾	1⅝	7⅜	2⅜	5⅛	¾
60⅛	51⅝	400	58¾	57½	58	Pan American P. & T.		$50,084,700	$50	.....	10-20-27	65⅞	40⅛	54⅞	38¼	69	40½
61	50½	3,400	61	58⅝	60¼	Pan American P. & T. "B"		$121,110,650	$50	.....	11-15-24	66⅜	40¼	58⅞	37¾	69¼	40½
..	..	No sales.				Pan American Western B		$400,000	N.P.	.....	1-30-27	37⅞	16¾	28⅜	15½	18½	13⅝
11⅝	4¼	9,100	11⅝	9⅜	11⅝	Panhandle P. & R.	(sh)	199,370	N.P.	.....	.....	18⅞	8	21⅜	11½	15¼	3
57¼	47½	200	57	55¾	57	Panhandle P. & R. pfd.		$2,564,400	$100	.....	7- 2-23	83	54	108	70	76	47½
41⅞	29¼	20,500	41⅛	39½	41	Phillips Petroleum	(sh)	2,593,075	N.P.	50cQ	1- 2-30	60¼	36¼	53⅞	35¼	47	24¼
2½	1	1,800	2⅛	2	2⅛	Pierce Oil Corp.		$29,622,831	$25	.....	.....	1⅛	½	5¼	½	3⅜	1
6⅞	2¼	5,300	6	5⅞	6	Pierce Petroleum	(sh)	2,500,000	N.P.	.....	.....	5½	2½	7	3½	5⅞	½
54	45	2,800	50	48½	50	Prairie Oil & Gas		$60,848,000	$25	50cQ*	12-31-29	55½	45⅝	68	46	65⅝	40½
60	54⅛	3,700	56¾	54¾	54¾	Prairie Pipe Line		$101,250,000	$25	75cQ†	12-31-29	190	130¾	280	172	65	45
11⅞	6½	600	11	10¾	11	Producers & Refiners		$37,438,950	$50	.....	9-15-23	33⅞	16¾	29⅞	16	25⅞	4
40	31	100	34	34	34	Producers & Refiners pfd.		$2,845,350	$50	.....	5- 1-25	50	36⅞	49⅝	41	46¾	25½
27¼	21⅛	5,400	26	25¼	26	Pure Oil		$75,959,250	$25	37½cQ	12- 2-29	33½	25	31⅝	19	30¾	20
28¼	22¼	5,000	26⅞	26½	26¾	Richfield Oil		$52,410,875	$25	50cQ	11-15-29	28⅝	25⅜	56	23	49⅝	20
25⅜	16½	3,700	24⅜	23⅞	24¼	Rio Grande Oil	(sh)	1,236,270	N.P.	$2A	7-25-29	..	..	37½	32	42½	15
56½	49¼	13,800	56	54⅞	56	Royal Dutch, N. Y.		611,303	$1.873	.....	9-13-29	54½	44¼	64	44⅝	64	43¼
48⅜	42⅜	20	48⅜	48¼	48⅜	Shell Transport & Trading Co.		£23,985,000	£1	$1.45	7-23-29	48⅝	40½	47⅞	41⅜	57½	40⅝
25½	21	10,800	25¼	24⅛	25	Shell Union Oil	(sh)	13,066,497	N.P.	35cQ	12-31-29	31¾	23⅝	39¼	23¼	31⅜	19
37	22¾	18,600	35⅜	33½	35	Simms Petroleum		$8,353,620	$10	40cQ	12-14-29	25⅜	14¼	27¼	18⅛	40⅛	15
32	21⅝	32,000	31⅜	29¾	31⅛	Sinclair Consolidated	(sh)	5,500,000	N.P.	50cQ	1-15-30	22¾	15	46¾	17⅜	45	21
111¾	109	100	111¾	111¾	111¾	Sinclair Consolidated pfd.		$16,025,250	$100	$2Q	11-15-29	104½	97	110	102½	111	103
42	28⅞	13,600	41½	40	41⅜	Skelly Oil		$27,441,250	$25	50cQ	12-16-29	37⅜	24⅛	42⅝	25	40½	28
74¼	55½	29,900	74¼	71⅛	74	Standard Oil of California	(sh)	12,594,098	N.P.	62½cQ	2-15-30	60¾	50⅜	80	63	81⅞	51½
49	37¼	3,600	48½	47½	48	Standard Oil of Kansas		$8,000,000	$25	50cQ	12-16-29	20¾	14⅝	37⅜	15	33¾	18
83⅜	58	256,200	83¾	78	82⅛	Standard Oil of New Jersey		$634,999,200	$25	25cQ*	12-16-29	41⅜	35⅛	59⅜	37¾	83	49
38⅝	31¼	22,600	37¾	36	37¾	Standard Oil of New York		$445,223,675	$25	40cQ	12-16-29	34⅛	29¾	44¼	28¾	48⅛	31⅜
70	53	900	68	67⅜	68	Sun Oil	(sh)	1,416,869	N.P.	25cQ	12-16-29	34⅞	30	77	31½	86⅜	55
8⅝	5¼	3,400	8	7½	8	Superior Oil Corp.	(sh)	776,979	N.P.	.....	12-20-20	..	..	..	..	24	5¼
59¾	50⅞	12,200	58⅞	57½	58¾	The Texas Corporation		$246,204,900	$25	75cQ	1- 1-30	58	45	74¾	50	71⅞	50
14½	8⅞	800	12	11⅞	12	Texas Pacific Coal & Oil Co.		$9,304,890	$10	2½%A‡	12-31-29	18⅞	12	26⅝	12⅛	23⅞	9½
31	19	100	31	31	31	Tide Water Oil	(sh)	2,191,759	N.P.	20cQ	12-31-29	29¼	19	41½	19⅝	40	14
94⅞	86¼	300	93¼	93¼	93¼	Tide Water 5½% pfd.		$19,947,000	$100	$1.25Q	11-15-29	90⅛	85	100⅛	86	97½	85¼
17⅜	10⅜	12,900	17½	16⅛	17⅛	Tide Water Associated	(sh)	5,560,424	N.P.	30cS	2-15-30	19⅛	15¾	25	14¾	23½	10
89¾	78	1,400	87½	86¼	87½	Tide Water Associated pfd.		$73,284,500	....	$1.50Q	2- 2-30	..	..	..	..	90⅞	74⅛
23⅞	16¼	79,800	23⅞	22⅞	23⅞	Transcontinental Oil	(sh)	3,742,029	N.P.	.....	.....	10⅜	3¾	14¾	7¼	15¼	5⅜
50	41⅛	2,700	48½	47	48	Union Oil of California		$104,342,375	$25	50cQ	11- 9-29	56½	39⅝	58	42⅜	57	42¾
38½	33	100	35	35	35	Union Tank Car	(sh)	1,254,048	$100	$1.25Q	12- 2-29	127½	94	128⅛	110	163¾	121⅞
27	16⅝	3,100	22⅞	22	22⅜	Warner-Quinlan	(sh)	632,948	N.P.	50cQ	1- 2-30	34½	24½	44⅞	26	42⅞	15
..	..	No sales.				White Eagle Oil & Refining	(sh)	505,100	N.P.	50cQ	1-20-30	27½	20	38	20⅛	38	25
19½	11½	700	19½	18¾	19½	Wilcox Oil & Gas	(sh)	428,907	N.P.	.....	5-10-28	..	..	..	..	29¾	12⅞

*Plus extra dividend of 25 cents. †Plus extra dividend of 50 cents. ‡Payable in stock.

In comparing highs and lows for the several years in the three tables it will be necessary to take into consideration cases where there have been splits in the stock

par capital stock. In first quarter of 1929, company reported profit of $2,120,991 after charges, surrendered leaseholds, etc., but before depreciation, depletion and Federal taxes.

Union Oil of California

Additional listing of 42,640 shares of capital stock of Union Oil of California on New York Stock Exchange is to provide for the 1 per cent quarterly stock dividend payable May 10. Out of an authorized issue of 5,000,000 shares of $25 par value, the company has outstanding at present 4,264,072 shares, exclusive of the stock dividend.

Ohio Oil

Ohio Oil Co. has declared a quarterly dividend of $1 on the common stock, placing stock on $4 annual basis. Previously company had been paying 50 cents quarterly and 50 cents extra. Initial quarterly dividend of $1.50 on the new preferred stock was also declared. Common dividend is payable June 14 to stock of record May 15 and the preferred June 14 to stock of record May 22.

Cities Service

Report of Cities Service Co. for year ended December 31, 1929, excluding subsidiaries, shows surplus available for common stock and reserves of $29,591,440 after providing for taxes, interest and preferred dividends, against $22,876,755 in 1928. Capital stock outstanding consists of 1,125,931 no-par shares of $6 cumulative preferred stock, 296,520 no-par shares 60 cents cumulative preference B stock, 63,067 no-par shares $6 cumulative preference BB stock, 1,000,000 shares (par $1) 5 per cent noncumulative stock and 28,945,627 no-par shares of common stock.

Standard Oil of New York

The annual statement of the Standard Oil Co. of New York and subsidiaries for 1929 shows net earnings of $38,750,849 after all charges and interest. This is only slightly less than the $39,645,228 reported for the preceding fiscal year.

The net for 1929 was equivalent to $2.23 a share on the 17,379,572 shares of $25 par capital stock outstanding at the end of the year. This compares with $2.28 a share on 17,363,783 shares for 1928.

The total income of the company, after deducting expenses incident to operations, was $98,216,082 last year, compared with $80,821,895 after the same charges and taxes, including Federal taxes, in the preceding year. Taxes in 1929 totaled $11,391,383, not including $24,457,494 paid or accrued for State gasoline taxes.

The balance sheet shows current assets of $226,910,121, leaving a net working capital of $179,654,323. In the 1928 balance sheet the company showed current assets of $228,336,767, current liabilities of $42,376,965 and a working capital of $185,959,802.

In 1929 the company paid dividends aggregating $27,782,052, which is slightly more than the $27,580,290 paid in the preceding fiscal year. The surplus account at the end of the year, after ad-

(Continued on Page 145)

INDEPENDENT OILS ON NEW YORK CURB

Quotations Compiled by Francis, Bro. & Co., Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.

1930 High	1930 Low	Week ended April 23 Sales	High	Low	Close	Stocks—		Outstanding capital	Par value	Div. rate	Last paid	1927 High	1927 Low	1928 High	1928 Low	1929 High	1929 Low
3/8	1/8	600	1/4	1/8	1/8	Amer. Con. Oilfields		$11,018,000	$5	.....	.....	2 1/16	.55	1 1/2	.53	72c	1/8
3 1/4	1 1/2	300	2 1/2	2 1/2	2 1/2	Amer. Maracaibo	(sh)	700,000	N.P.	.....	.....	7 1/2	2 3/4	9 1/2	3 1/8	8 5/8	1 1/8
1 3/8	1	100	1	1	1	Argo Oil	(sh)	683,971	$10	.....	.....	2 3/4	1	4 1/2	2 1/4	5	1 1/2
28 3/4	27	700	28	27 3/4	28	British American (new, C.W.I.)		$1,311,321	N.P.	25cQ*	1- 2-30	40	20 1/2	55	32 3/4	62	7 7/8
2 1/8	3/4	1,900	1 3/4	1 5/8	1 5/8	Carib. Syndicate		$131,250	25c	.....	.....	28 1/4	15 1/2	4 1/2	3 7/8	4 7/8	1
43 1/2	26 1/2	97,500	43 1/2	41 3/4	43 3/8	Cities Service	(sh)	24,290,359	N.P.	30cA†	1- 2-30	58 3/4	40 1/4	90 7/8	54	68 1/8	20
93 7/8	88	800	92 7/8	92 1/4	92 7/8	Cities Service pfd.	(sh)	1,500,000	N.P.	50cM	1- 2-30	95 3/8	87	103 1/2	94 1/2	98 3/4	84
3/4	1/4	9,400	1/2	3/8	3/8	Columbia Syndicate		$2,000,000	$1	.....	.....	3 7/8	1 1/8	3 1/4	.76	2	1/2
5 7/8	4	100	4	4	4	Cons. Royalty		$5,000,000	$10	15cQ	10-25-29	9 3/4	6 3/8	8 7/8	6 1/4	11 1/8	2 1/2
7 1/2	5 5/8	1,600	6 5/8	6 3/8	6 3/8	Creole Petroleum	(sh)	5,977,873	N.P.	.....	.....	14 3/8	9 1/2	17 1/2	9 1/2	11 3/4	5 5/8
1	1/4	700	3/4	3/4	3/4	Crown Central	(sh)	578,000	N.P.	.....	.....	3	.50	3 1/4	.76	2 1/2	1/4
12 3/8	7 1/4	2,900	12 1/4	11 7/8	12	Darby Petroleum	(sh)	1,019,392	N.P.	25cQ	1-15-30	12	4	33 1/2	3 1/4	26	6 1/2
11	4 1/2	100	10 3/8	9 1/2	10 1/4	Derby Oil & Refining	(sh)	500,000	N.P.	.....	.....	2 1/2	74	2 1/4	1	11	2
60	35	75	57	57	57	Derby Oil & Refining pfd		$48,500	N.P.	.....	.....	16 3/4	4	21 1/8	7 1/2	44	20 3/4
163	131 1/4	5,400	163	157	160	Gulf Oil Corp.	(sh)	4,504,921	$25	37 1/2cQ	1- 1-30	118	86 1/4	165	101 1/8	209	115
1 3/4	3/4	6,000	1 5/8	1 1/2	1 1/2	Intercontinental Pet.		$5,682,000	$5	.....	.....	2 1/2	.80	3 3/8	1	2 7/8	3/4
3	1 7/8	300	2 3/4	2 1/2	2 3/4	Kirby Petroleum	(sh)	750,000	N.P.	.....	.....	2 1/4	1 1/8	3	1 1/4	3 5/8	1 1/4
4 3/4	1 1/8	6,700	4 3/8	4	4 1/4	Leonard Oil & Dev.		$50,000,000	$25	.....	.....	10 3/4	5 1/4	9 3/8	5 1/8	6 1/8	1
29	18 5/8	500	28 3/8	27 1/2	28 3/8	Lion Oil & Refining	(sh)	250,000	N.P.	50Q	1-31-30	27 1/2	20	43 7/8	20	38 7/8	18
55 7/8	34 1/8	7,100	55 7/8	54	54 1/2	Lone Star Gas	(sh)	5,000,000	N.P.	20cQ	12-31-29	59 3/4	37	69 1/4	48 1/2	67 7/8	28
3/8	1/4	600	3/8	1/4	3/8	Magdalena Syndicate	(sh)	850,000	$1	.....	.....	2 7/8	.80	1 7/8	.50	1 1/4	1/4
16	12	300	14 1/2	14 1/2	14 1/2	Margay Oils		$160,000	N.P.	50cQ	1-10-30	52	12	48 1/2	32	38 1/2	14
7 1/8	2	600	4 1/2	4 1/2	4 1/2	Mexico-Ohio Oil		.....	.....	.....	.....	12 1/4	5	8	2 3/4	6 3/4	2 1/2
3/4	1/2	300	5/8	5/8	5/8	Mountain & Gulf		$4,000,000	$1	2cQ	1-15-30	1 1/2	1	1 3/4	.76	1 1/2	1/4
12 1/8	8	500	11 3/8	11 1/8	11 3/8	Mountain Producers		$1,682,182	$10	40cQ	1- 2-30	29 1/4	22 3/4	28 7/8	19 1/2	22 7/8	7
3 1/2	2 1/2	200	3	2 7/8	3	New Bradford Oil		$1,095,291	$5	12 1/2cQ	1-15-30	5 7/8	4 5/8	5 5/8	4 1/4	5	2 1/4
7 1/4	3 1/2	100	5 3/4	5 3/4	5 3/4	New Mex. & Arizona		$1,000,000	$1	.....	.....	16	9 1/4	11 7/8	7 1/8	9 3/8	2 1/4
11 1/4	6 7/8	200	10	10	10	North Central Texas	(sh)	400,000	N.P.	15cQ	12- 2-29	12 3/4	9 1/2	14 1/4	8 1/2	18 1/2	6 1/8
2 1/2	1	3,400	1 7/8	1 3/4	1 7/8	Pandem	(sh)	489,875	N.P.	.....	.....	9 3/8	3 1/4	6	2 1/8	3 1/2	1/2
4 3/8	1 7/8	1,100	3	2 7/8	2 7/8	Pantapec Oil	(sh)	1,506,000	N.P.	.....	.....	12 1/8	7	15 5/8	8 1/2	10 1/4	1 7/8
..	..	No sales.				Pennok Oil		$150,000	N.P.	.....	.....	13 1/2	5 1/8	7 3/4	4 7/8	7 3/4	4 3/8
10	9	100	9	9	9	Red Bank Oil	(sh)	250,000	N.P.	.....	.....	24 3/8	7	18	4 7/8	16	9 5/8
5 3/8	2 1/8	100	4 1/2	4 1/2	4 1/2	Reiter-Foster	(sh)	388,584	N.P.	10cQ	12- 9-29	15 1/2	3 1/2	12 7/8	4 1/8	8 1/2	1 1/8
6 7/8	3 5/8	100	6 7/8	5 7/8	6 7/8	Ryan Consolidated	(sh)	500,000	N.P.	.....	.....	7	4 1/2	12	4 1/8	11	3
2 1/2	2	300	2 1/8	2 1/8	2 1/8	Salt Creek Consolidated	(sh)	1,286,300	$10	10cQ	1- 2-30	8	5 1/4	7 1/4	5 1/2	5 7/8	1 7/8
15 1/4	10	200	14	14	14	Salt Creek Producers	(sh)	1,496,859	$10	50cQ	2- 1-30	35 1/2	27 1/4	35	23 1/8	25 7/8	9
1	1/2	100	3/4	3/4	3/4	Savoy Oil		$750,000	$5	.....	.....	7	1 1/4	3 1/2	1	2 1/2	5/16
..	..	No sales.				Transcontinental pfd.		.....	.....	.....	.....	..	..	..	..	..	..
4 1/2	2 1/4	500	3 1/4	3 1/8	3 1/8	Venezuelan Petroleum	(sh)	755,090	$5	5cQ	11-15-29	7 3/8	4 1/4	9 1/8	4 3/8	6 1/2	1 3/4
4	2	1,000	4	4	4	Woodley Petroleum		$500,000	$1	.....	.....	7	4 3/4	8 1/4	4 7/8	9 1/2	2
2 1/2	1/2	200	2 1/4	2	2 1/4	Y Oil & Gas (new)		$100,000	N.P.	.....	.....	6	1 3/4	8 3/8	2 1/8	2 7/8	1/4

*Including one-half per cent monthly in stock. †Payable monthly and a monthly stock dividend of one-half per cent

STANDARD OIL STOCKS ON NEW YORK CURB

Quotations Compiled by Francis, Bro. & Co., Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.

1930 High	1930 Low	Week ended April 23 Sales	High	Low	Close	Stocks—	Outstanding capital	Par value	Div. rate	Last paid	1927 High	1927 Low	1928 High	1928 Low	1929 High	1929 Low
17 3/4	12 1/4	300	18 1/4	18	18 1/8	Anglo-American Oil (vot. C.O.D.)	£4,192,635	£1	.36 5/8	11-27-29	21 5/8	17 3/8	22 3/8	14 3/8	17	11
1	1/2	100	3/4	3/4	3/4	Atlantic Lobos	.....	.....	.....	.....	..	..	..	..	..	..
25	23	100	24 3/4	24 3/4	24 3/4	Borne Scrymser	$1,000,000	$25	$18A	10-15-29	69	50	56 1/2	44 1/2	46 1/2	25
69	57	100	59 1/4	59 1/4	59 1/4	Buckeye Pipe Line	$10,000,000	$50	$1Q	12-14-29	60	45	76	53	74 1/4	55
184 3/4	155	200	170 1/4	170 1/4	170 1/4	Chesebrough Mfg.	$3,000,000	$25	$1Q*	12-30-29	126	76 1/2	161	117	210	130
17 3/4	12 1/8	200	15	15	15	Continental Oil	$36,057,840	$10	.....	12-15-27	22 5/8	16 1/4	23	16	29	10
65 3/4	40 1/2	300	65	60 1/4	65	Cumberland Pipe Line	$1,500,000	$50	$1Q	12-15-29	137	89	114	67	75 3/4	40
54 3/4	43	100	43 1/4	43	43 1/4	Eureka Pipe Line	$5,000,000	$100	$1Q	11- 1-29	68 1/2	47	88	64 1/8	70 1/2	42
5 1/4	2 1/2	100	5 1/8	5 1/8	5 1/8	Galena Signal Oil, ctfs. of dep.	$16,000,000	$100	.....	.....	13 1/2	3 1/2	13	4 1/4	6 1/2	3
119	78	7,600	118	115	118	Humble Oil & Refining	$74,103,300	$25	50cQ	1 1-30	68 1/2	54	114 3/4	59 1/4	128	74 1/8
311	305	100	308	308	308	Illinois Pipe Line	$20,000,000	$100	$10SA	12-16-29	182	123 3/4	290 1/2	176 1/2	340 1/2	260
30	22 1/8	500	27 3/4	27 1/8	27 3/4	Imperial Oil Co., Ltd.	26,421,768	N.P.	12 1/2cQ	12- 2-29	64 3/4	37 3/4	104	56 3/4	41	22
41	37 3/8	100	38 1/2	38 1/2	38 1/2	Indiana Pipe Line	$3,000,000	$10	50cQ‡	2-15-30	94 1/2	61	91 7/8	74 3/8	41 7/8	26
24	17 7/8	5,700	23	22	23	International Pet.	14,247,088	N.P.	12 1/2cQ	12-16-29	29	28 1/4	55	35	30 3/8	15
22 3/8	19 1/4	600	19 5/8	19 5/8	19 5/8	National Transit	$6,362,500	$12.50	25cQ‡	12-16-29	24	13 1/2	32 3/8	19 3/8	25 1/8	10 1/2
18 1/4	14	200	16 1/2	16	16 1/2	New York Transit (new)	$1,000,000	$10	40cQ†	1-15-30	44 1/2	31 1/4	75	38 1/2	17 1/2	10
54	37	50	41	41	41	Northern Pipe Line‖	$2,000,000	$50	$28A	1- 2-30	100	70	69	56 1/2	63	41
74 7/8	66 1/8	100	71 1/4	70 1/2	71 1/4	Ohio Oil	$60,000,000	$25	50cQ‡	12-14-29	67 7/8	52	84	58 1/2	79 7/8	64 1/4
32	20	300	27 3/8	25 1/4	27 3/8	Penn Mex. Fuel	$10,000,000	$25	50cQ	12-14-29	39	12	84	28	44 1/2	20
33	24 3/8	400	21 3/8	21 3/8	21 3/8	Solar Refining	$4,000,000	$25	$1.25SA	12-20-29	..	..	..	..	50	29
18 7/8	13	300	18 7/8	18 7/8	18 7/8	Southern Pipe Line	$1,000,000	$10	50cQ	.....	27 1/4	15 1/2	19	15	22 1/2	13
45 7/8	37 1/2	300	43 1/2	43 1/2	43 1/2	South Penn Oil (new)	$30,000,000	$25	50cQ	12-30-29	41 1/2	35	71 7/8	36 3/4	60 1/4	35 1/4
64	50	100	51	50 1/4	51	Southwest Pa. Pipe Lines	$1,750,000	$50	$1Q	10- 1-29	83	55 1/2	102	70	70	60
59 3/4	49 3/4	17,800	58 7/8	56 1/2	58 7/8	Standard Oil of Indiana	$348,175,069	$25	62 1/2cQ‡	12-16-29	81 1/2	64 3/8	95 7/8	70 7/8	63	45
38	33 1/4	14,900	38	35 3/8	37 1/4	Standard Oil of Kentucky	$25,654,516	$10	40cQ	12-16-29	130	111 1/2	179 3/4	122 1/4	46 7/8	29
48 7/8	44 1/8	300	48 7/8	48 7/8	48 7/8	Standard Oil of Nebraska	$4,649,225	$25	62 1/2cQ‡	12-20-29	49 1/2	40	54 7/8	39 7/8	50 1/4	40
108 1/2	81	200	98	96	96	Standard Oil of Ohio	$14,000,000	$25	62 1/2cQ	1- 2-30	87 1/2	72	134	71	129	60
..	..	No sales.				Swan-Finch Co.‖	$861,466	$25	.....	12- 2-29	21	14 1/2	23 1/2	16	18	10
96 7/8	88 1/8	5,200	93	90 5/8	92	Vacuum Oil Co.	$126,180,350	$25	$1Q	12-20-29	..	..	111	72	133 3/4	75

*Plus 50 cents extra. †Plus 10 cents extra. ‡Plus 25 cents extra. ‖Bid and ask.

ROCKY MOUNTAIN AREA

(Continued from Page 124)

holes are getting near the sands and could be brought in next week with good luck. This field is still to bring in its first dry hole.

The Commonwealth Petroleum's No. 1 is drilling at 2,000 feet and may be a completion next week. The Kotops well is fishing at 1,700 feet and may also be a completion shortly. On the American side of the line the Mid-Continent's No. 2 and the Thomas well are both close to the sand and may be in the pay next week.

The Norbeck Drilling Co., drilling on the Keye lease near Baker, got a 20,000,000-foot gasser in the well the drilling firm is putting down for the Capital Gas Corp. of Billings. This is a new gas firm in the Baker Field and the company was lucky enough to hit a big well the first try.

The Dry Creek well being completed by the Ohio Oil Co. in the field of that same name in southern Montana, is standing cemented at 4,975 feet. The well now is good for 8,000,000 feet daily, but the main gas sand is thought to be about 20 feet deeper and the well will be drilled down as soon as the cement sets.

The record for state lands being leased for oil and gas has been broken this spring in Montana. Up to the present, some 15,560 acres of state leases have been awarded this year to applicants who expect to drill for oil or gas on same. The State will receive the sum of $11,670 for these lands as rental.

Rocky Mountain Production

Daily average pipe line runs from the various pools in the Rocky Mountain area for the week ending April 26:

WYOMING	
Salt Creek	30,070
Frannie	160
Big Muddy	2,070
Oregon Basin	4,430
Dutton	10
Elk Basin	710
Ferris	40
Grass Creek	2,020
Hamilton	670
LaBarge	2,080
Lance Creek	140
Lost Soldier	3,130
Osage	1,070
Poison Spider	460
Rock River	2,210
Rex Lake	....
Lander	560
Simpson Ridge	50
Teapot Dome	40
Greybull	....
Total	49,920
MONTANA	
Cat Creek	1,200
Kevin-Sunburst	5,610
Pondera	1,830
Lake Basin	70
Total	8,710
COLORADO	
Moffat	997
Fort Collins	1,414
Florence	533
Iles	942
Tow Creek	441
Boulder	50
Rangley	25
Total	4,402
NEW MEXICO	
Hogback	450
Rattlesnake	438
Table Mesa	107
Artesia	653
Cap Rock (Maljamar)	785
Jal	1,607
Hobbs High	369
Getty	off
Lea	6,119
Miscellaneous (Lea County)	625
Total	11,153
Grand total	74,185
Grand total April	77,881
Difference	3,696

CANADIAN FIELDS

(Continued from Page 130)

in the Red Coulee Field 7 miles west and 5 miles north of Vanalta's No. 1 producer. The acreage will be developed by the Petroleum Holding Co. of Calgary. Carnegie Petroleum Co. of Calgary, has been incorporated to drill in the Red Coulee Field. It has 1,000 acres in Montana and 240 acres in Alberta. Carnegie's No. 1 will be drilled with cable tools on a Montana location between 4 and 5 miles from Cosmos' No. 1. Provisional directors are Lee Dobson, Stanley Davies, J. C. Burdell and H. S. Shannon with L. H. Miller, secretary-treasurer.

Fred Shelly and associates of Vancouver, B. C., are planning to drill on 1,000 acres on the Montana end, spudding in before June 1, and are securing additional acreage in Montana and Alberta.

Border Fields

In the Spring Coulee area, west of Lethbridge, Alberta Pacific's No. 1, Section 15-4-23w4, is drilling below 75 feet. The first possible horizon is at 800 feet, with six potential sands, the lowest at 5,000 feet.

In Lomond district, Hudson's Bay Oils' Lomond No. 2, Section 23-17-18w4, is drilling below 1,506 feet.

In the Blood Reserve area, Commonwealth Petroleums, Ltd., is making definite location for its commercial test, probably in Section 23-8-23w4.

In the Milk River district, Commonwealth's No. 1, LSD 9, Section 9-3-15w4, is drilling below 3,830 feet.

Duvernay Structure

An important new wildcat is being started on the Duvernay Structure in east central Alberta by Alberta Pacific Consolidated Oils, Ltd., of Calgary, on acreage of the Canadian Exploration Co. of Denver. Alberta Pacific's Duvernay No. 1 has been located in LSD 5, Section 34-55-12w4, near Two Hills, 90 miles northeast of Edmonton. Derrick is now being erected and the test will spud in before June 1. Russell H. Forbes has been named general manager, succeeding A. G. Clarke.

Shell Seeks Concession

It is unofficially reported that interests associated with the Shell Oil Co. are negotiating with the Dominion government for drilling rights on the Federal Buffalo Park near Wainwright. The heavy Wainwright crudes are believed suitable for naval fuel oil. The Wainwright Park area, which has heretofore been withheld from leasing, is regarded as a good prospect for a field of heavy crude, with structural conditions somewhat more favorable than in the Wainwright Field generally.

Wainwright Field

In the Wainwright Field, Bethwain Oils' No. 2, LSD 9, Section 4-45-6w4, is reported close to the top of the oil sand. Fabyan Petroleums' No. 1, LSD 8, Section 24-45-8w4, is deepening from 1,838 feet. A sand at this horizon proved unsatisfactory. British Permanent Oils, Ltd., of Edmonton, has secured 920 acres on structure and is preparing to start a test.

Test at Skiff

In the Skiff Field, Devenish Petroleums' No. 4, NW, Section 29-5-14w4, is reported rigged up.

Inland Petroleums, Ltd., has been incorporated by a syndicate headed by Arthur Densmore of Lundbreck and Alex Morrison of Coleman, Alta., and has financed to drill No. 1 on the Red Coulee structure, where the company holds 240 acres. Other holdings include 80 acres in the Skiff Field, 200 on the Watson structure near Lundbreck, 3,000 on the Blood Reserve and 1,000 on the Mill Creek structure near Weymarn's No. 2.

Northern Alberta

In the Clearwater district, northern Alberta, several companies and syndicates are planning to drill east of Fort McMurray. Weymarn Petroleums' No. 1 the discovery well, which got a good show of crude at 500 feet two years ago, may be deepened or a new test started. Acreage staked by J. P. Hughes and associates in the same vicinity will be tested by Waterways Oil Co. with one outfit. Two Calgary syndicates and one Edmonton company recently shipped outfits to Waterways from Edmonton, and possibly half a dozen tests will be started.

British Columbia

In addition to the renewal of operations in the Sage Creek Field, some wildcatting is forecasted for British Columbia this season. Pacific Petrol Oil Co. is reported financed for a 4,000-foot test at Dorr, between Rexford and Fernie. Acreage has been purchased outright, and drilling is to start this spring. A Spokane syndicate is financed to drill several miles south of the Pacific Petrol's location and a short distance north of Eureka, Mont.

Ontario Operations

In Kent County, Ontario, Union Natural Gas Co.'s test on the J. W. Taylor farm, E half, Lot 145, Talbot Road, Raleigh Township, has been shot in the Tilbury sand, with an initial production around 800,000 feet. Union Natural Gas Co.'s test on the Sullivan farm, Lot 15, Concession 14 Raleigh, is drilling.

In Dover Township, Kent County, Acme Gas & Oil Co.'s No. 3 is 400 feet in the Trenton limestone and apparently a dry hole. This test, just south of Ajax Oil & Gas Co.'s No. 4 gasser, is the only direction remaining untested. Olga Oil & Gas Co.'s No. 4 is reported shut down.

In Colchester Township, Essex County, Acme Gas & Oil Co.'s community test of the Trenton limestone has finished dry.

In Mosa Township, Middlesex County, Southern Ontario Gas Co.'s No. 3 is drilling about 1,000 feet east of No. 2 gasser on the Ernest Armstrong farm near Newbury.

On the Thamesville structure in northeastern Kent County Acme Gas & Oil Co.'s No. 6 shallow test is reported to have got a strong show of crude, and looks like a good pumper.

IMPROVEMENT IN WORLD MARKET EXPECTED ON ENDING OF CONTROVERSY

By A. E. Mockler

New York Bureau, The Oil and Gas Journal

NEW YORK, Apr. 28.—Material improvement in the statistical position of world oil markets is looked for as a result of the settlement of the disagreement on refined products between the Royal Dutch-Shell and Standard Oil Co. of New York interests in the Dutch East Indies. This situation, which had resulted in average reductions of 50 per cent in gasoline and kerosene prices in that area, was terminated last week with the restoration of the old basis in Dutch East Indies markets. The increases amounted to approximately 8 cents per gallon on both gasoline and kerosene, and restores markets in that area to a world parity.

The official terms of settlement, according to cabled reports, calls for the establishment of prices at a level of current export quotations in the United States, plus transportation charges to distributing markets. These terms are in many instances similar to those which ended the long price war between the Soviet and other companies in British markets last year. Gasoline and kerosene were selling in Great Britain at approximately 6 cents per gallon under the world parity, British and American companies having cut prices in an effort to hold their distribution against the inroads of the Soviet oil trust. Arrangements were made early last year by which the Soviet was allotted a fixed percentage of the business of Great Britain in return for the establishment of retail prices showing a profit. In addition, Anglo-American oil and other companies contracted with the Soviet oil trust to buy certain portions of its surplus production.

With the clearing up of the situation in the Dutch East Indies, it is reported negotiations are under way for similar adjustments in other Far Eastern markets, with the prospect that conditions in all principal world markets will subsequently be stabilized on the same basis.

This definite move to bring world markets into line with the situation in the United States is regarded as a direct move by Royal Dutch-Shell to support the conservation program of the American oil industry. Notwithstanding the steady growth of the petroleum industry in other parts of the globe prices in principal world markets are still based on the American export quotations.

Current developments in the world oil position and outlook, it is believed, point the way to definite world co-operation in the stabilization of the industry on a profitable basis. Overproduction in this country has been instrumental in disturbing the world oil position, and Sir Henri, representing the Royal Dutch-Shell interests, has made several attempts during the past two years to arrive at an understanding with the oil trade in this country whereby world oil conditions might be stabilized.

Stabilization of world oil markets for refined products on a profitable basis, it is believed, will be followed by curtailment efforts in Venezuela—this latter development, in turn, being contingent upon the success of conservation activities in the United States. The current move in California to reduce daily production by 60,000 bbls. to a maximum of 550,000 bbls. per day, is expected to be instrumental in making for further stability in markets in this country, and will likewise have a direct bearing in foreign markets. California during the past few years, with consistent overproduction of gasoline, has become an important competitor with the Gulf in the export field, and California gasoline has found its way to many world markets formerly receiving American gasoline exclusively from the Gulf.

With the long-awaited stabilization of world markets at last in sight, the one remaining important international problem confronting the oil industry is Russia. While that country has been eliminated, or rather adjusted, so far as British markets are concerned, production of both crude oil and refined products in Russia is steadily climbing, and the five-year program now under way in that country indicates materially enlarged output of petroleum from year to year. While internal consumption in Russia is growing steadily, the rate of growth is not sufficient to absorb the larger output, and constantly increasing quantities of Russian refined products will be thrown on world markets.

The aligning of American and principal British and Dutch companies with respect to marketing operations abroad, should be able to handle any competition the Soviet oil interests may offer, and because of this, it is expected the Russian situation will be taken care of through a further partitioning of world markets, much as was the case with the settlement of Great Britain's price war in 1929.

PROGRESS IS MADE IN STRAIGHT HOLE DRILLING

(Continued from Page 34)

Table 3A, Figure 6, gives the maximum, minimum and average loss in depth in feet for the wells of Table 3.

Table 4A, Figure 7, supplies similar data for the wells of Table 4.

It is interesting to note that at a measured depth of 6,000 feet the wells of 1928 made an average loss in depth of 122 feet, whereas the wells of 1929 lost an average amount of only 30 feet, or say 25 per cent of the former loss.

The reason for the great improvement in this item may be seen when it is appreciated that 100 feet of hole inclined at 20° from vertical loses 6 feet in vertical depth, while 100 feet of hole inclined at 10° loses only 1.5 feet.

Better Hole Now Being Drilled

With the drilling of more vertical wells has come a very noticeable improvement in the quality of hole. Sudden bends, constituting bad places, which used to be fairly common, now seldom occur.

MAY SURVEY COLOMBIA

American Minister Jefferson Caffery, at Bogota, Colombia, reports that for the past two months, a German geologist has been trying to persuade the Ministry of Industries to enter into a contract with him for a geological survey of the entire Republic.

CARE OF MACHINERY IN GASOLINE PLANTS

(Continued from Page 131)

most economical and efficient method and the grade of oil to use. For these problems it is usually best to have the recommendations of the lubricating engineer of the company from whom you are buying your oils. We have found that from 20 to 50 per cent of the oil commonly used in the cylinders can be saved with less trouble caused by stuck rings, fouled spark plugs and carbon if the proper oil is used and the rate of feed is cut down accordingly. As a general rule the lightest oil that will lubricate under any set condition is the best to use. Paraffin base oils have higher flash and fire tests for the same viscosity than asphalt base oils and therefore stand up better in the cylinders or where high temperatures are encountered. There are a variety of examples of problems in choosing oils to suit conditions in gasoline plants. Extra heavy air compressor oil will add months of service to rings in high stage vapor compressors. Light lubricating oil mixed with mineral seal oil will cut out trouble with carbon and stuck valves on four cycle engines. Light unblended neutral will stop emulsion trouble in crankcases of steam engines where water is encountered. Unblended cylinder stock will separate better from condensed steam used as boiler feed water.

Fuel Gas Supply

The gas supply should be well regulated and should be clean and free from moisture. The mixture must be carefully regulated to prevent carbon formation and loss of power. Much trouble is caused by worn regulator valves and loose governor connections causing irregular or choked gas feed. Sudden changes in the B.t.u. valve of the gas will make trouble in the engine room. A new absorber and still causing an increase in gasoline production cut down the B.t.u. valve on the residue gas to such an extent that a four cycle engine could not be started until it dawned on the operators to change the gas mixture. Unless the feed can be kept regular, it is not best to use uncondensed vapors in the engine room fuel on this account.

Jacket Water

Jacket cooling water requirements vary with different inlet temperatures from 5 to 25 gallons per horsepower hour. The outlet temperature should not exceed 140° F. but you may have a low outlet temperature and a hot engine if the jackets are scaled. Whether you use gravity or force feed, enclosed or open cooling system, condensed water makeup, zeolite or other water treatments, are matters of individual preference so long as you keep a constant water supply and the jackets free from scale. The use of acids for cleaning jackets is necessary unless other means for preventing the formation of scale are installed. Jacket scale is the cause of nearly all trouble with cracked and scored cylinders, stuck rings, and loss of power.

Inspection

At least once a month each unit should be shut down for complete inspection and cleaning, paying particular attention to the need for small repairs. All bolts on moving parts should be replaced after two or three years' service. The crystallization of two bolts on the crosshead of a 70 horsepower engine cost over $500 in repairs in addition to damage to other units and the danger to the operator on tour.

Repairs

Whenever it is necessary to make repairs to engines which have been badly worn we have found it more economical to completely overhaul the engine, replace or rebush all work parts, realign the bearings and in some cases reset the engine completely if it is loose on the foundation. Except for trouble in the cylinder, the other two big problems are crystallization of crankshafts and connections and misaligned, loose or tight bearings.

Ignition System

The ignition system is the main cause of everyday trouble unless it is properly cared for. The failure of magnetos to fire is caused largely by the accumulation of oil and grit which shorts out the circuit. These should be thoroughly cleaned whenever the unit is down for inspection. Often a magneto which is apparently dead will give several months' service after a thorough cleaning. To prevent shorting, wiring should be kept supported away from the engine. Much of the expense of spark plugs can be stopped by cleaning and spacing the points at .015 inch. We are now using up old plugs which had been thrown away, by this method. Be certain to use parts manufactured by the makers of your ignition equipment whenever repairs are necessary.

Pumps

As a rule pumping equipment, especially steam pumps, receive more abuse than any other machinery in the plant. I would not recommend the use of steam pumps for any constant service with more than 50 to 75-foot piston speed. The repairs and packing expense were so large on a boiler feed pump running at 60-foot piston speed that we replaced it with an outside packed pump with capacity to run at only 20-foot piston speed. This pump had been used for over 20 years in mine boiler service. During the first year it was repacked only one time and had only one broken part during that time. It has been in service now for three additional years. There will not permit discussion of packing for pumps and compressors, type and material of valves, and many other pumping problems, but the time spent in eliminating these troubles will pay good dividends in lowered operating cost.

Summary

In the care and operation of machinery the plant personnel is as much a factor as the kind, type, or age of the equipment. Like the boll weevil lubricator, there should be no place in this work for the soldier who does only as he is told, for the nervous soul who gets excited and jumps at conclusions, for the robot who goes about his tanks by mechanical set rules, for the hard head who will not change his mind in the face of proven facts, or anyone who will not apply ordinary common sense and physican laws to his everyday problems. When these have been eliminated, you will find a lowered operating expense and a higher efficiency rating.

RESEARCH COMMITTEE OF GEOLOGISTS REPORTS PROGRESS ACCOMPLISHED

By L. G. E. Bignell
Petroleum Engineering Editor

At the regular meeting of the Tulsa Geological Society held in Tulsa April 21, Alexander McCoy, chairman of the research committee of the American Association of Petroleum Geologists and associated with the E. W. Marland Co., Ponca City, Okla., made a report on progress that has been made by this committee that proved of much interest to the members.

Mr. McCoy stated that the work of the research committee has not yet been thoroughly organized as it was thought best to canvas the situation carefully before undertaking any large projects. Therefore the committee has up to this time devoted itself to studying the possible lines of investigation and has decided that only subjects that deal with problems of interest to the greatest number will be considered first. In this way it is hoped that the funds appropriated will be best spent.

There are two problems in which all geologists are interested, the first is structure and the second is accumulation of oil in the structure.

It is planned to analyze the literature on oil field structures and by dividing this work among as many geologists as it is possible to get to devote some time to the problem it is hoped that some definite conclusions can be reached, at least, upon a part of the problem, for it is admitted it may take a long time and much research to finally solve some details.

Structures may be divided into four classes: (a) Those due to lateral pressure, (b) due to vertical uplift, (c) due to differential settling, and (d) those caused by sinking of the basin.

There may be some other causes for structure building but considerable study will be necessary to determine whether the theories are based upon sound and logical reasoning and do not conflict with certain known facts.

The accumulation of oil in structures deals with conditions that seem to be harder to explain than the forces that acted during the formations of the structures.

Mr. McCoy said it does not seem to be a fact that without internal changes in the structure oil will not accumulate and illustrated this point with geological sections of two fields, one in Kansas and one in Oklahoma, where changes in the intervals between stratas on and off structure were pronounced.

To explain how or why these changes in interval has occurred seems rather difficult, as consideration of the four possible modes of forming structures listed above did not seem to give the answer, for with lateral pressure it seems logical to assume the intervals would be regular, and this also applies to the theory of vertical uplift.

On the other hand, if settling formed the structures it would seem logical to assume that compression would be greatest in the shale beds and this is not always the case.

The data on source beds is also lacking as outcrops do not prove anything definite, and if it is assumed that oil was first formed in shales and migrated from them to the sand beds it hardly seems probable that every trace of oil in shale should be missing as it is in many fields. Some shales such as the Sylvan, Chattanooga and Cherokee do contain oil in places but in other areas the shales are apparently now free of all oil while the sands under them are saturated.

The movement of the oil might be attributed to circulating water that has been squeezed out of the shales by forces set up by earth movements. It does seem evident that the oil has moved from the place where it entered the sand to the place where it is later found but that type of movement is through a porous body and may be accounted for by one of several theories that have been advanced.

The discussion of oil accumulation brought out the admission by some geologists that it is quite possible oil found in limestones is indigenous to that limestone and was formed in it and has accumulated in the pores formed in the rock by leaching.

The American Petroleum Institute now is conducting research endeavoring to locate places in the sea bottoms where oil is now being formed from the material that has accumulated there but no evidence that oil is actually being formed now has been brought to light yet.

It was pointed out it is quite possible that the conditions necessary to form oil occur in cycles and that at this time it may be all conditions are not right for the formation of oil from the materials now in the seas or falling and accumulating on the sea bottoms.

The discussion on these various phases of geology was participated in by a number of the geologists present and the outline as presented by Mr. McCoy was appreciated by everyone at the meeting. It is thought many volunteers to assist in this research work will offer their services.

TRENDS IN MANUFACTURE OF AUTO LUBRICANTS

(Continued from Page 70)

made the splash system of lubrication inadequate and practically all manufacturers have adopted forced feed lubrication, or what might be more correctly termed forced oil circulation, to supplement the splash system. The oil is pumped from the crankcase through the bearings back to the oil pan, where the only means of cooling is by radiation. If the oil pan were insulated and a cooler installed in the oil pump discharge line, more adequate cooling could be provided which would compensate for the wide range of climatic conditions and driving speeds.

As previously mentioned, the automobile manufacturer has endeavored to extend the life of the lubricant and maintain the original viscosity, but very little attention has been given to temperature control of the lubricant necessary to maintain a constant viscosity under operating conditions. This could be accomplished by an independent controlled cooling system with several resulting advantages. First, by supplying precooled oil to the bearings for cooling, the quantity of oil circulated could be reduced. Second, it would be possible to use a cooled lubricant of lower viscosity for lubrication and reduce the friction of the moving parts. Third, if a forced supply of a precooled lubricant with constant circulation or replacement was supplied for sealing the piston, an effective seal could be secured with an oil of relatively low viscosity at test temperatures because of the reduced temperature. From this it is evident that if the proper provisions were made for temperature control of the lubricant, it would be possible to use a less viscous oil than that now in use and at the same time increase the effficiency of lubrication. It is a well known fact that starting and lubricating troubles at low temperatures decrease with decreased viscosities of lubricants. It is also true that the carbon residue decreases with decreased viscosity. Hence, I believe that the automobile engine can be most efficiently lubricated by the use of a less viscous oil and equipment to maintain the viscosity constant by means of temperature control.

Present Trend

It is my opinion that the trend will be toward lubricants of lower viscosities, lower pourpoints and having as flat a temperature viscosity curve as possible, but lower viscosities will only be used after the engine manufacturer has installed temperature regulation in the lubricating system. In the manufacture of such high quality lubricating oils, the selection of the proper crude oil is of major importance. Crude oil is classified into three divisions, namely, asphalt base, paraffin base, and mixed base. The last mentioned is a mixture of the first two and its physical and chemical properties will approach either those of asphalt base or paraffin base, depending on the relative percentage of the two substances present in the crude.

An inherent characteristic of lubricants prepared from asphalt base crudes is the low cold test that may be obtained without special processing. However, the slopes of their temperature—viscosity curves are steep and at pourpoint temperatures they deviate widely from the laws of viscous flow. Their volatility is high, with a low carbon residue, for this reason. On the other hand, we find that without special processing the paraffin base oil solidifies at frigid temperatures because of the precipitation of wax. With special processing, however, it is possible to obtain a product having a cold test equivalent to that of asphalt base oils. The lubricant prepared in this manner follows the laws of viscous flow more closely at pourpoint temperatures than the asphalt base lubricants, although there is some divergence. The volatility of the paraffin base lubricant is lower and the carbon residue is higher than in the case of lubricants of the same viscosities prepared from asphalt base crudes. A marked characteristic is the

relatively flat temperature viscosity curve of the paraffin base oil.

Unchangeable Characteristics

As pointed out, lubricants made from the two crude oils have some physical and chemical characteristics which cannot be changed by processing, and both research and actual performance have demonstrated the superiority of those made from the paraffin base crude oils.

However, during the last few years asphalt base lubricants have been widely used due to their low pour test and carbon residue. This competition, coupled with the possibility of increased yields, has awakened the Pennsylvania refiner to the development and use of more scientific methods, which has resulted in increased yields, better lubricants and reduced costs of production. The improvements made have been in practically all branches of the refining industry and the improvement of one branch has assisted and hastened the improvement of others. The major improvement has been made in the distilling equipment by the use of modern pipe stills and fractionating columns. Practically all of these units are of the atmospheric single flash type. In this type of unit all the oil above the bottoms product is vaporized in a body and the vapors are then separated into the various cuts in the fractionating column. With this system, very close fractionation is obtained and it is possible to produce substantially all cuts without rerunning. These units are very flexible and cuts can be varied as to boiling range or viscosity to suit the products desired. The use of such distilling apparatus produces wax distillates and cylinder stock bottoms of better colors, and simplifies the wax removal, as well as increases the yield of viscous oils. Such equipment and also vacuum units built along similar lines have been used for rerunning and reducing pressed wax distillates and bright stock solutions.

Low Cold Test

The demand for low cold test lubricants has made it necessary to manufacture both neutral and bright stocks of substantially zero cold test. The methods used are special pressing, centrifuging, filter aid methods and solvent extraction.

Neutral oils are being dewaxed in very nearly the same manner as in the past, the only variation being that special or double pressing is being resorted to in order to secure approximately zero cold test products. The process of dewaxing by pressing has been used for a number of years and only the changes that have been made in order to secure wax free oils will be discussed. The use of direct ammonia expansion for final chilling has been found necessary and progress has been made in determining the chilling rates that give the best crystallization of wax. Economies have been introduced into this method in the form of heat exchange that have aided in keeping the refrigerating requirements at a minimum. Press room temperatures have also been lowered in order to prevent an increase in temperature of the stock being dewaxed and the resulting redissolving of wax that had been precipitated at the lower temperature.

Dewaxing

The dewaxing of bright stock naphtha solutions by centrifuging is substantially the same procedure that has been used during the past few years with the exception that operating temperatures have been reduced as low as 40° F. in order to secure a bright stock having a 5° F. pourpoint. In this case economies have also been effected by the use of heat exchange and final chilling is also necessarily carried out by the direct expansion of ammonia. The percentage of solvent naphtha used is ordinarily 60 per cent and the naphtha is of a rather narrow boiling range. The naphtha serves two purposes, in that in addition to accentuating the difference in molecular weight between the wax and dissolved bright stock, which is essential in order to obtain complete separation, it acts as a selective solvent for the bright stock. Because of the higher solubility of bright stock in naphtha than of wax in naphtha there is a greater difference between the molecular weight of the bright stock naphtha solution and the wax naphtha solution. Because of the larger amount of heat to be extracted from the bright stock solution to be centrifuged in the production of wax free bright stock and the high operating vacuums of the refrigerating system the overall efficiency is low. This results in increased operating and overhead expense that is in reality out of proportion to the results obtained.

Two Other Methods

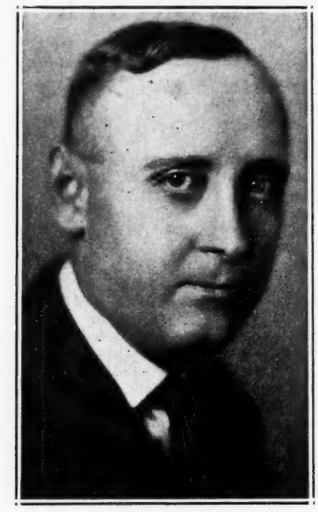
The other two methods referred to were dewaxing by the use of filter aids and solvents. There are mechanical difficulties to be overcome before either process is used extensively and neither is being used to any great extent at the present time. The Weir filter aid process may be used for dewaxing bright stocks and has one advantage over centrifuging in that the process is simpler. The stock in this case must also be diluted with naphtha and from one-half to 1 pound per gallon of filter aid material is required. It has been found necessary in experimental work to dilute the bright stock with as high as 75 per cent naphtha and maintain a 30° F. differential between the filter temperature and pourpoint desired. There are mechanical difficulties in operation such as recovery of filter aid and naphtha. However, the naphtha loss does not greatly exceed the loss in centrifuging. The possibilities of wax extraction by the use of solvents has been appreciated for some time but the high cost of solvents and the possible handling losses has delayed the development of the process. However, in as much as the process can be carried out at temperatures considerably above the pourpoint of the oil desired, I am of the opinion that the mechanical difficulties involved in the development of the process can be readily overcome and wax free oils produced at costs substantially the same as those produced by other processes.

In discussing the trend of manufacture of lubricating oils the manufacture of lubricants from mixed base crudes cannot be overlooked. The production of lubricants is now receiving considerable attention by refiners in the Mid-Continent and products now being manufactured from such crudes can equal lubricants made from Pennsylvania oil by selecting a crude that has a high paraffin content. Such crudes as Seminole and Oklahoma City have a low per cent of asphalt but yet too high to make bright stocks by the usual method without high acid sludge losses during treating. This difficulty has been largely overcome by the use of vacuum distilling equipment which is capable of taking the steam refined stock overhead. In this way a separation is made between the asphalt and lubricating stocks. In order to accomplish the most in this type of distillation, the problems involved must be carefully considered. Most of these units involve the use of pipe stills with high liquid velocity through the tubes and short time heating. The hot oil and vapors are discharged into a fractionating column operating at reduced pressures. The vapors are fractionated in the usual manner into gas oil, pressable wax distillate, slop wax and steam refined stock. The steam refined stock is then diluted, and centrifuged for wax extraction. This material must then be acid treated and filtered and the use of mechanical mixers and centrifugal separation of the acid sludge have aided materially in improving the product. Neutralization is usually accomplished by contact filtering.

By the further perfected use of the above process high quality bright stocks can be produced from the relatively low priced mixed base crudes and such oil will become a competitor in the field now enjoyed only by Pennsylvania stocks.

NEW VICE PRESIDENTS OF THE PHILLIPS PETROLEUM CO.

F. E. Rice



H. A. Trower

C. R. Musgrave

At the annual meeting of Phillips Petroleum Co. held at the offices of the company in Bartlesville, Okla., April 22, all directors and officers were re-elected and in addition three new vice presidents were elected, namely, F. E. Rice, vice president in charge of natural gasoline division; C. R. Musgrave, vice president in charge of traffic; and H. A. Trower, vice president in charge of retail marketing.

GEOPHYSICAL SEARCH FOR OIL ON GULF COAST

(Continued from Page 70)

but on the other hand, there are a considerable number of apparent failures to be debited against the geophysical methods. Some of them are due perhaps to a 100 per cent failure of the method. Some of them are due, perhaps, to a 10 to 25 per cent failure of method. Some of them are due to the expectation of detail accuracy from surveys which can give only reconnaissance accuracy. Some of them very definitely are due to the bungling use of geophysics. Many of them are very definitely due to the youth of the methods and inexperience in interpreting them.

The final place of the several methods in mapping nonsalt dome structure is not yet evaluated. To tell what has gone wrong in many of these apparent failures of the geophysical methods, we need more knowledge about the geological situation. In many cases our geological interpretation of the structural situation is based on one well on the structure and correlated with wells 10 or more miles away.

Although we cannot at the present time directly evaluate the value of geophysical methods and their final place in mapping of the nonsalt dome types of structure, we can, I think, make an approach to that problem indirectly by analogy to the history of geophysics in the Gulf Coast, particularly to the history of the torsion balance.

Evolution of Geophysical Methods

The evolution of the geophysical methods, particularly the torsion balance and seismic methods, has been more rapid than anywhere else and those two methods in their application to the problems of the Gulf Coast salt domes are much more highly advanced than the application of geophysical methods to the nonsalt dome types of structure in general. The greater degree of evolution of the torsion balance and seismic methods in the Gulf Coast has been due to two causes:

The geological structure and corresponding differences in physical properties are much more exaggerated and practically the only anomalies present are those produced by the salt domes and salt ridges. The structural and physical situation, therefore, in many ways is very much simpler than the structural and physical situation in the nonsalt dome provinces. The geophysicist, therefore, has been able to analyze his results and distinctly different effects more easily than he has in many other places.

Vastly more intensive geophysical work has been done in the Gulf Coast than anywhere else in the world.

The history of the torsion balance method on the Gulf Coast is given on the accompanying table:

Shallow domes era, 1923-24—mapping of known domes; 1924-26—reconnaissance for shallow domes; 1924-25—discovery of shallow domes; 1925-26—negative drilling of nontypical maxima and minima.

Discredited or seismic era, 1926-28—little reconnaissance; detailing of shallow domes.

Deep domes or renaissance era—regional surveying for minima: 1. Certain types maxima recognized as discredited. 2. Certain types maxima recognized as indicating deep domes. 3. Salt ridge minima, an unknown quantity.

Torsion Balance

The torsion balance was introduced in the winter of 1922-23 and the year 1923 was spent in mapping known domes and getting an idea of the type of anomalies produced by the Gulf Coast salt domes. A standard type of anomaly was found with most of the domes. This anomaly was a distinct and rather sharp maximum coincident with and about the same area as the top of the dome. North Dayton with a minimum was an exception and one or two others had only faint maximum. It was also recognized that a short distance out from the edge of the dome, the gradients not uncommonly reversed their direction and pointed away from the dome. The knowledge acquired

was largely empirical and few of us at that time had worked up much knowledge of the mathematics of torsion balance interpretation.

In 1924 to 1926 extensive reconnaissance was made for similar maxima. In 1924 four domes, Nash, Long Point, Allen, and Clements were discovered as such maxima and were proved by the drill.

In 1925 to 1926 we failed to pick up the characteristic type of maxima but did pick up a considerable number of maxima of another type and also three minima, East Edgerly, Lost Lake, and Roanoke. As many of the maxima had other indications which warranted drilling and as such a deep dome as Markham has a very obscure maximum, we hope that these non-typical maxima represent similar shows deep in the dome but we recognized that the maxima were not of the typical type. On the basis of the North Dayton gravity minima, we hoped that the minima mapped similarly represented the anomalies of moderately shallow salt domes for in those days our analysis of the salt effect had not gone quite far enough to recognize that these minima were the effects of deep salt domes or the very deep roots of shallow domes. Many of the maxima and the three minima were drilled with totally negative results. On two minima, wells went to around 4,000 feet and on one of them in Edgerly, the well went to just below 5,200 feet. The negative results of these tests with the total failure of any indication of salt dome materials or oil, brought the torsion balance into disrepute. The seismic method, also had by this time proved itself much faster and cheaper in reconnaissance for shallow domes.

Dewalt Discovery

For the period 1926-1928 the torsion balance, therefore, was only slightly used for reconnaissance and the few torsion balances which remained in the Gulf Coast were used mainly in detailing the top of shallow domes, old known domes or domes discovered by the seismic method.

In 1928, the Dewalt Dome was found by the torsion balance in a place where there had been a great deal of shooting which had not revealed nor suggested a dome. Even after the dome had been found, many seismic troups shot the dome and failed to find it. A Humble Oil & Refining Co. troup did pick up the dome independently and almost simultaneously with the torsion balance. Oil was discovered on the dome late in the year and during 1929, the production was almost 2,000,000 bbls. In 1929, the discovery wells were brought in on the Esperson and Hankamer minima. Both minima had been shot and condemned by the seismograph, although after a definite uplift had been shown by the drilling at Esperson, at least one seismic troup found a slight but definite irregularity of some sort at the dome, but found no definite indication to their mind of a salt dome. In the meantime, salt had been discovered at a depth of 4,000 feet at Edgerly between the center of the Edgerly minima and the Edgerly oil field and only about one-half mile from the Roxana Petroleum Co.'s deep test; the Lost Lake Dome had been checked up by the seismograph not far from the center of the Lost Lake minima and the presence of salt had been confirmed by the drill; and the second test on the Roanoke Dome produced a small amount of oil. The general recognition, therefore, began to dawn late in 1928 and early in 1929 that the torsion balance had a very definite ability to check up deep domes which the seismograph had difficulty in detecting. The recognition, also, came that the condemnation of the minima on the basis of the first wells at Lost Lake, Edgerly, and Roanoke was premature.

TIDE WATER MOVES OFFICES

NEW YORK, Apr. 26.—The Tide Water Oil Co. and the Tide Water Associated Oil Co. are moving this week to new quarters in the Whitehall Building, 17 Battery Place.

ONUS FOR OVERPRODUCTION OF OIL IN VENEZUELA SHOWN IN FIGURES

By A. E. Mockler
New York Bureau, The Oil and Gas Journal

NEW YORK, Apr. 28.—Statements attributed to Sir Henri Deterding, managing director of the Royal Dutch-Shell interests, tending to place the onus for overproduction of oil in Venezuela on the shoulders of American companies operating in that country, have aroused widespread interest among American oil men. Sir Henri, on his arrival here early in April, stated that the previously-voiced offer of Royal Dutch-Shell to join in a conservation and curtailment movement in Venezuela was still open, but that American companies had not signified their intention of co-operating in such a movement, and that the offer extended by Royal Dutch-Shell might be withdrawn.

Efforts to secure comment on this statement from executives of the principal American companies operating in Venezuela proved unavailing, but a perusal of the production figures covering Venezuelan operations for the first quarter of the year indicates that American companies have already taken steps for the curtailment of their production in Venezuela, whereas Royal Dutch-Shell subsidiaries have shown appreciable increases over 1929 in their production totals.

Output of the three principal Royal Dutch subsidiaries in Venezuela during the first quarter of this year was substantially 25 per cent in excess of that of the same companies for the first quarter of last year. On the other hand, the three principal American companies operating in Venezuela show a decline of approximately 16⅔ per cent in their first quarter's production this year, as contrasted with 1929.

The actual status of negotiations for co-operative effort in conservation work in Venezuela has always been shrouded in more or less of mystery. Sir Henri is known to have conferred in London last year with executives of Pan American Petroleum & Transport Co., presumably on the question of the producing operations of Pan American's Venezuelan operating subsidiary, Lago Oil & Transport. Nothing definite or official regarding these negotiations or their outcome has ever been announced.

No Formal Proposal

So far as can be ascertained there has never been a formal proposal extended to other American companies to participate in a general conservation program in Venezuela, although Sir Henri at various times has stated in newspaper interviews that he would welcome the co-operation of American companies in such a move, and has signified the willingness of Royal Dutch-Shell to co-operate fully in any such endeavor.

E. J. Sadler, president of Creole Petroleum Corp., a subsidiary of the Standard Oil Co. of New Jersey, in response to an inquiry from The Oil and Gas Journal on the Venezuelan situation, said:

"The Creole Petroleum Corp. has produced no oil in Venezuela except such as was necessary for fuel, or to test wells in its wildcatting operations. The company's oil is derived solely as a royalty or part interest from properties operated by the Venezuelan Gulf Oil Corp., and consequently its operations have had nothing to do with the Venezuelan production. It is a fact that during the past year the production in Venezuela has been steady around 385,000 bbls. daily.

"Our company's attitude toward conservation would be the same in Venezuela that it is in any other part of the world, although as stated above, in Venezuela we are producing no crude for export."

Venezuela, reputedly the lowest-cost major oil field in the world, has attained an important place in the production operations of Royal Dutch-Shell. During 1929, Venezuela produced the largest percentage of the total world production of Dutch-Shell companies, and current indications are that country will hold its leadership in this respect in 1930. A comparison of the production totals of principal companies in Venezuela for the first three months of 1930 and the corresponding months last year illustrates the expanding tendencies of Royal Dutch-Shell in that country:

	Barrels of 42 U. S. Gallons					
	January		February		March	
Company—	1930	1929	1930	1929	1930	1929
V.O.C.*	3,797,761	4,103,720	3,640,616	3,607,811	3,787,378	3,790,306
Lago	3,292,649	3,475,971	2,949,800	3,074,790	2,232,060	3,223,737
Gulf	1,942,281	2,477,975	1,744,419	2,345,820	1,924,113	2,328,800
Carib. Pet.*	1,711,200	633,733	1,547,000	550,004	1,696,134	632,307
Creole	479,453	638,630	425,053	578,690	478,532	536,500
Colon*	111,000	.....	408,551	.....	591,641	.....

*Royal Dutch-Shell subsidiaries.

Colon Oil Corp., which was not in production last year, has started shipments from the Tarra Field, and is becoming an important factor in Royal Dutch-Shell production totals in Venezuela. This company produced 1,383,038 bbls. of crude in the first quarter of 1930, and its production has increased steadily from month to month. General Asphalt Co., an American concern, has a small royalty interest in the production of Colon. All arrangements have been made for extensive development of the Colon oil properties, and a pipe line to move the output of the Tarra Field to the Lake for transshipment to tidewater is now in operation. This pipe line has been constructed to permit the linking up of the line with another large adjacent field held by Colon and regarded as an important potential producer.

Comparative Production

Production of crude oil in Venezuela by subsidiaries of the Royal Dutch-Shell during the first three months of 1930 showed an increase of more than 25 per cent over output for the comparable period in last year, totaling 17,290,281 bbls., as contrasted with 13,347,881 bbls. in the first quarter of 1929. During the first three months this year, output of the Royal Dutch-Shell subsidiary companies in Venezuela compared with 1929 totals for the same period is as follows:

	Barrels	
	1930	1929
Venezuelan Oil Concessions	11,225,755	11,501,837
Caribbean Petroleum	4,954,334	1,846,044
Colon Oil	1,110,192	.....
Total	17,290,281	13,347,881

Production by Lago (Pan-American), Gulf, and Creole (Standard of New Jersey), the three principal American companies operating in Venezuela, totaled, in the aggregate, 15,468,360 bbls. during the first quarter of 1930, a decline of approximately 16⅔ per cent from the 18,680,913 bbls. produced by the same companies in Venezuela during the first three months of 1929. Comparative data on the production of these three companies follows:

	Barrels	
	1930	1929
Lago	8,474,509	9,774,498
Gulf	5,610,813	7,152,595
Creole	1,383,038	1,753,820
Total	15,468,360	18,680,913

British Controlled Oilfields, operating independent in Venezuela, produced a total of 462,749 bbls. of crude during the first quarter of the current year, a slight increase over the 453,789 bbls. produced in the corresponding three months of 1929.

This data would tend to indicate that the American oil companies operating in Venezuela, although they have done nothing toward the establishment of a formal agreement regarding production curtailment, have nevertheless individually gone about adjusting their production to changed conditions in world markets, particularly the United States. All of the American companies, it is believed, have important shut-in production in Venezuela, and although definite data is lacking, it is believed that Royal Dutch-Shell also has considerable production shut down awaiting better world markets.

Executives of American companies in Venezuela, while feeling that the question aroused by Sir Henri's charge of lack of co-operation is too delicate for open discussion, are nevertheless known to feel keenly the implication that a desire for steadily growing production in Venezuela on their part is a major factor in making for world market instability, and point to their production figures and those of the Royal Dutch-Shell group in rebuttal.

MOTOR TRANSPORTATION GROUP TO MEET HERE

The central group of the American Petroleum Institute committee on automotive transportation will hold a meeting in Parlor "W," Mayo Hotel, Tulsa, on May 5 and 6 to discuss some of its many problems.

R. F. Fike, chairman of the group, expects about 30 men to be present representing the major production and marketing companies in the area west of the Mississippi River and east of the Rocky Mountains. The eastern group recently held a meeting in New York City and it is expected the western group will soon hold a meeting on the Pacific Coast.

These three groups, eastern, central and western or Pacific, comprise the general division of automotive transportation which as first founded by the A.P.I. general committee was organized under the division of marketing.

Recently the automotive transportation committee has also been classified under the division of production because in the Mid-Continent section the problems with which the members of this committee must deal are made up largely of transportation material for the production department. In some areas the transportation problems are connected with delivery of refined products which accounts for the first classification under the marketing division.

Under the new set-up the committee will be classified under both the division of production and division of marketing and this meeting to be held in Tulsa will discuss many problems dealing with each phase.

One of the major problems has to do with speed and load laws of the different states because under the existing laws trucks may be stopped at state lines and required to make adjustments of their loads to conform to the laws in effect in the state into which they are driving. This also applies to speed laws and drivers have been cautioned about their speed when they have not been exceeding the speed laws of their own state.

This confusion of laws has been the subject of much discussion in automobile societies in many states and President Hoover has outlined a code that would be national in its scope which will come up for discussion at the Tulsa meeting and it is hoped sufficient interest can be created to secure the support of the American Petroleum Institute in having it adopted by the various states.

Numerous other problems will be discussed as this group has the handling of transportation for both the production and marketing departments of the major oil companies and therefore will have a wider scope of interest than might be expected to exist in the eastern group where the problems deal almost exclusively with marketing transportation problems.

Speakers recognized as authorities on different phases of automotive transportation will be invited to attend from various parts of the country.

Interest of Natural Gas Men Now Centers On Vice Chairmanship

With the annual meeting of the Natural Gas Department of the American Gas Association opening in New Orleans, La., next Monday, interest is manifested in the choice of a vice chairman for the ensuing year. In accordance with established practice the vice chairman selected this year will be made chairman in 1931. Adherence to this custom will make H. C. Cooper, in charge of the engineering activities of gas companies owned by the Standard Oil Co. (N. J.) headquarters in Pittsburgh, Pa., the chairman for the coming year, as he is now serving as vice chairman.

Among the men discussed for the office of vice chairman the two probably most frequently mentioned are Frank L. Chase, Dallas, Tex., vice president and operating manager of the Lone Star Gas Co., and L. K. Langdon, Cincinnati, Ohio, counsel for the Union Gas & Electric Co. Both have been outstanding figures in the natural gas industry for many years.

Besides the business sessions, the program for which was printed in The Oil and Gas Journal April 17, the convention events include entertainment features for the delegates and for the women accompanying them. Monday afternoon the steamer Capital will leave the wharf at the foot of Canal Street for a ride of two and one-half hours around the harbor and up the Mississippi River. That evening there will be a ball in the Tip Top Inn on the twelfth floor of The Roosevelt, in which hotel all sessions of the convention are to be held.

Tuesday forenoon women will be taken on a pedestrian tour through the Vieux Carre, the old French, Spanish and Creole quarter of the city. Luncheon will follow the trip. Wednesday evening a "Night in Old New Orleans" will be presented for women guests at Le Petit Theatre du Vieux Carre. For the men a "Mardi Gras in May" will be given Wednesday evening in the Tip Top Inn. "Beautiful stage effects with the formality of a theater presentation and the jovial informality of a private party" are promised at this stag smoker.

Indications point to a large attendance at the convention, according to H. C. Morris, chairman, and E. J. Stephany, secretary, of the Natural Gas Department. Railroad reservations have been heavy in the last week. Many plan to make the trip by automobile. The convention will cover four days, closing Thursday, May 8.

P.I.E.A. ELECTS OFFICERS

DALLAS, Tex., Apr. 26.—F. S. Leonard of St. Louis was elected president of the Petroleum Industry Electrical Association at the close of their two-day third annual convention in the Baker Hotel. He succeeds T. J. McMahon of Houston, who was elected to a five-year term as director. The next meeting was awarded to St. Louis.

A. J. Balcom of Dallas, who completed a term as director at this meeting, was elected first vice president. C. E. Foster of Muskogee was elected second vice president. H. E. Brown of Independence, Kans., was re-elected secretary. W. T. Bula of Bartlesville, Okla., was elected treasurer.

In addition to Mr. McMahon and the five officers, the following are directors: Morris Chambers of Shreveport, F. C. Baker of Ponca City, J. H. Borchers and R. N. Bayless, both of Houston.

The association, which models the American Petroleum Institute in its standardization work, closed its convention with a banquet in the Adolphus Hotel as guests of the Graybar Electric Co. Its sessions, which were executive, dealt with standardized telephone, telegraph and power service in the oil industry.

The group adopted as a slogan, to be posted by all members, "It's an Awful Death to Be Talked to Death."

NOTED EASTERN OPERATORS SELL OIL PROPERTIES FOR $20,000,000

BRADFORD, Pa., Apr. 26.—The largest deal in the history of the oil business east of the Mississippi River was completed recently when the Niagara Oil Corp. of Bradford, purchased the oil property of Thomas H. Kennedy and the properties formerly owned by the William C. Kennedy Co. The purchase price was not made known officially, but it is believed to have been around $20,000,000.

The Kennedy holdings consist of approximately 14,000 acres of oil producing territory in Pennsylvania, Ohio, Indiana, Illinois and Oklahoma, with 1,000 producing wells and an average production of about 1,000 bbls. a day. This is the largest and most desirable block of acreage owned by independent operators in the Eastern Fields.

The negotiations were consummated by T. H. Kennedy, S. P. Kennedy and Homer G. Barcroft for the Kennedy interests, and Forest D. Dorn and R. J. Brennan for the Niagara Oil Corp.

With the addition of the Kennedy properties the Forest Oil group stands today the largest independent producer east of the Mississippi River.

The Niagara Oil Corp. is the largest unit of the Forest Oil group and is owned jointly by the Forest Oil Corp. and the Niagara Share Corp. of Maryland. The latter is a $100,000,000 investment trust headed by the Schoellkopf interests of Buffalo, the second largest stockholders in the Niagara Hudson Power Co., one of the foremost electric utilities in the world.

Forest D. Dorn Heads Company

The officers of the Niagara Oil Corp. are Forest D. Dorn, Bradford, president; James H. Anderson, Buffalo, vice president, and R. J. Brennan of Bradford, secretary and treasurer.

The growth of the Forest Oil Corp. is almost phenomenal. The corporation began operations in 1916 through the efforts of C. G. Dorn and Forest D. Dorn, and at that time had a production of only 20 bbls. a day and a small acreage in the Bolivar Field. Since then it has risen rapidly until today the firm is the largest producer of oil in Pennsylvania, operating over 4,000 wells, with a production of 8,000 bbls. a day.

In the water flooding method which started the revival of activities in the Bradford Field the Forest Oil Corp. has always been a leader and it has under way the largest flooding development in this section.

During July, 1929, the Niagara Oil Corp. purchased the following oil properties: From the Burns estate, 624 acres; McCandless and Krampf, 118 acres; E. A. Smith, 30 acres; Mazza Oil Co., 24 acres; M. C. Roat, 51 acres; Bliss Oil Co., 88 acres; Douglas and Curtis, 100 acres; Fitzgibbon estate, 46 acres; E. M. Daly, 60 acres; Paul and Evans Oil Co., 128 acres; Suhr and McSweeney, 300 acres; Premier Oil Co., 150 acres; McKay estate, 72 acres; a total of 1,791 acres.

The Forest Oil group in 1929 drilled and completed 800 wells in the Bradford Field, the largest number of wells ever completed in that length of time in the oil business.

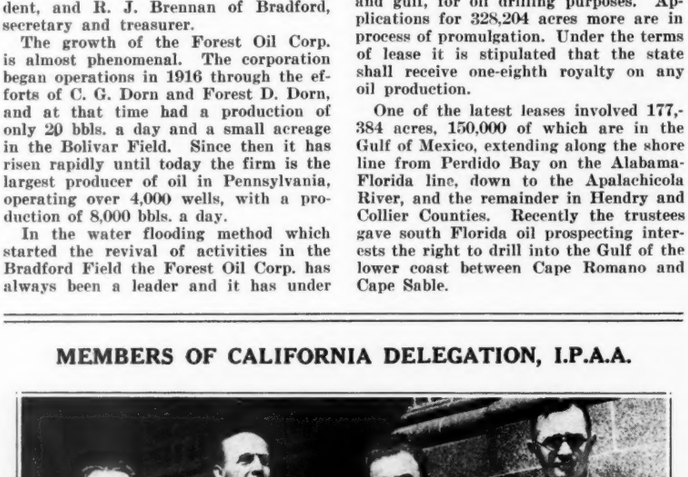
Thomas H. and Samuel P. Kennedy, bankers and oil producers of Bradford, who sold their holdings to the Niagara Oil Corp., are sons of the late Peter C. Kennedy, one of the earliest producers in the Bradford Field. After the death of their father the sons largely increased the comfortable fortune they inherited, but in addition they were already on the way to wealth on their own account when the elder Kennedy died. They were largely interested in the Wood Oil Co., one of the oldest producers in Kentucky which recently sold out to the Missouri-Kansas Pipe Line Co.

LEASE FLORIDA STATE LAND

TALLAHASSEE, Fla., Apr. 26.—The State of Florida, through the trustees of the internal improvement fund, had leased up to the middle of March 598,978 acres of land, dry, and under the ocean and gulf, for oil drilling purposes. Applications for 328,204 acres more are in process of promulgation. Under the terms of lease it is stipulated that the state shall receive one-eighth royalty on any oil production.

One of the latest leases involved 177,384 acres, 150,000 of which are in the Gulf of Mexico, extending along the shore line from Perdido Bay on the Alabama-Florida line, down to the Apalachicola River, and the remainder in Hendry and Collier Counties. Recently the trustees gave south Florida oil prospecting interests the right to drill into the Gulf of the lower coast between Cape Romano and Cape Sable.

MEMBERS OF CALIFORNIA DELEGATION, I.P.A.A.



Left to right: Ivey Clark, Compton, Alco Oil Tool Co.; Guy Finney, Los Angeles; Roland Rich Wooley, Los Angeles, and R. L. Gilmore, Bakersfield.

E. E. LE MASTERS DIES AT BATTLE CREEK, MICH.

E. E. Le Masters, general superintendent of the Oklahoma Pipe Line Co., died in a sanitarium at Battle Creek, Mich.,

E. E. Le Masters

Monday night. He was 58 years old and had served nearly 35 years with different companies connected with the old Standard Oil group.

Mr. Le Masters went to Battle Creek a week ago for a general check-up on his physical condition. At that time he seemed to be enjoying his normal health.

Mr. Le Masters formerly was district foreman for the Prairie Oil & Gas Co. In 1909 when the Oklahoma Pipe Line Co. was organized, Mr. Le Masters went with that company and remained in active service with it until his death. He resided at Muskogee, Okla., where the company maintains its headquarters.

One son, Thomas Le Masters, is in the oil business in Peru, South America.

YORK STATE'S BIGGEST GASSER

BRADFORD, Pa., Apr. 26.—The Belmont Quadrangle Drilling Corp. of Bradford struck the biggest gas well in the history of the New York State Field about Dundee, N. Y., recently when the second well drilled there within the past two months came in with 10,000,000 feet production. The gas was struck when approximately 14 feet of sand had been penetrated.

The company completed its first well there some time ago and it showed a production of 6,000,000 feet. Seven feet of sand was penetrated before the first well came in. The two wells are about 2,000 feet apart on a 25,000-acre parcel of land that the local company recently acquired.

W. G. MONCRIEF DIES

NEW YORK, Apr. 26.—Funeral services for William G. Moncrief, president of the Swan-Finch Oil Corp., were held in Toronto, Canada, on April 26. Mr. Moncrief died suddenly April 21 while on a vacation in San Francisco, Calif. Mr. Moncrief was an outstanding figure in the petroleum industry. He was founder of the Cataract Refining & Manufacturing Co., in Buffalo, N. Y., in 1899, and headed this company until it consolidated with the Swan-Finch Oil Corp. in 1919, when he became president of the latter company.

HOUSTON BUYS ELBERTA

SHREVEPORT, La., Apr. 28.—Houston Oil Co. announces the purchase of the Elberta Oil Co., of Nashville, Ark., which business will in the future be operated in the name of the new owner. Barney Smith, president of the Elberta company, will continue as manager of the business for the Houston Oil Co.

Unusual Activity in Drilling Operations In Louisiana Fields

SHREVEPORT, La., Apr. 26.—Drilling for oil and gas in Louisiana during the first quarter of 1930 increased 33 per cent over the same period of 1929 and 42 per cent over activities during January, February and March of 1928 Dr. J. S. Shaw, supervisor of the minerals division of the state Department of Conservation, reveals in a summary of drilling activities during the period covered. This summary shows that the Department has issued a total of 392 permits for various drilling activities up to April 1 this year compared with 379 last year and 364 the year before. Permits for drilling new wells are by far in the majority, totaling 256 for 1930 and 193 last year and 180 the year before, the difference being divided between workovers of various sorts on old wells and abandonments, the latter including both played out wells and dry holes.

These figures cover the entire state but a division of permits for work in the two major divisions of the state, that south of Red River, which cuts the state in a northwest-southeast direction about equally half in two, being commonly referred to as South Louisiana or Gulf Coast territory and all that from the river to the Arkansas line as North Louisiana, shows that in spite of the great amount of work that has followed geophysical exploration in the Gulf Coast area, North Louisiana has been much the most active through the three-year period. Permits to drill north of the river totaled 191 in the first three months of this year, 116 in the same period in 1929 and 137 in 1928.

The greater part of this year's increase has been due to the discovery of Zwolle and Blue Lake areas in Sabine Parish, the redevelopment of Carterville in Bossier Parish as an oil field and continued activity in the Richland and Monroe gas fields, as Richland was responsible for a large part of the increase in 1928 and 1929. With seven pipe lines of major dimensions pulling on the Monroe and Richland gas fields these two areas will continue active and it is quite likely that exploration of the prospective gas field in East and West Carroll Parishes indicated by wells already drilled will be revived as the older fields decline under the tremenduous drag exerted by these seven lines.

"Louisiana is crowding California for third place in total gas production and with the vast pipe line systems radiating from the state this year should definitely place this state in that position, and with the great number of salt domes discovered in South Louisiana showing a large number of producers we can look to the future of this district with the assurance that the oil resurces of Louisiana are merely scratched" concludes Dr. Shaw.

TEST ASPHALTIC COATINGS

NEW YORK, Apr. 26.—All pipe line coatings containing petroleum asphalt should be included in the co-operative investigation of protective coatings now under way, it was announced today by the American Petroleum Institute's Committee on Corrosion. The committee asked that oil companies manufacturing such coatings file application at once with the United States Bureau of Standards to insure participation. The committee is not directly sponsoring any asphaltic coating tests, but hoped such coatings would be tested widely. The program is being conducted jointly by the institute, the bureau and the Underground Pipe Protection Institute, which represents coating manufacturers. Field work is expected to begin early in June.

BORNEO GUSHER ON FIRE

A great fire has broken out in a gusher recently completed on the island of Tarakan, Borneo. So far there have been no casualties and no damage.

U. S. CHAMBER OF COMMERCE HEARS OIL MEN AND HONORS W. G. SKELLY

By Charles E. Kern
Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Apr. 29.—At the round table conference held by the Chamber of Commerce of the United States at its eighteenth annual meeting today, E. B. Reeser, president of the Barnsdall Corp., of Tulsa, and president of the American Petroleum Institute, together with Herbert R. Macmillan, president of the California Oil and Gas Association of Los Angeles, talked about what's ahead for business in the oil industry.

Mr. Macmillan said California may justly take pride in the curtailment of oil production in that State. The prices prior to and after curtailment showed that the producers had gained $39,000,000 in the improved price they obtained. Week before last he had recommended to the general committee that the production be curtailed to 550,000 bbls. per day instead of 609,000 bbls., and that proposition is being considered and it is his opinion that daily production will be reduced by agreement below 609,000 bbls. per day. Refinery operations were curtailed to 61.3 per cent of their total capacity on April 12. The general curtailment of refinery runs in the United States amounted to 72.4 per cent and he added that it is apparent co-operation on the part of the operators does bring desirable and laudable results. He said:

"We hear many advocate that production of oil should be supervised by the Government but this he regarded as a false doctrine contrary to our form of government. Production is purely an intrastate transaction as determined by the Supreme Court and government regulations are apt to result in inefficiency and inequality. The operators should conduct their business so that the Government will not be required to intervene."

When the Federal Government began a suit in equity against the California refiners charging conspiracy because of a pool through which surplus gasoline was purchased which he regarded as purely instrastate, the pool was abandoned and a price cutting war began. In this case the effect was adverse to the small fellow and the gasoline war resulted in several small refineries being compelled to close while the community at large suffered.

Mr. Reeser called attention to the fact that oil conservation meant much to the small operators as 75 per cent of the small operators might be put out of business except for the policy of conservation which he regarded as the salvation of the small independent producer.

Mr. Reeser approved the suggestion that a committee be appointed by the natural resources group to frame resolutions representing the joint interests of all branches of national resources for consideration by the board of directors of the Chamber of Commerce.

W. G. Skelly, president of the Skelly Oil Co. and president of the International Petroleum Exposition, Tulsa, was elected a director of the United States Chamber of Commerce from the second place for the district.

STANDARD OIL CO., N. Y. MAKES ANNUAL REPORT

(Continued from Page 139)

justments and premium on capital stock issues during the year totaled $111,770,874, which was made up of capital surplus amounting to $27,081,620 and earned surplus amounting to $84,689,253.

At the end of 1928 the profit and loss surplus of the company amounted to $100,571,647, made up of $26,187,773 capital surplus and $74,383,874 earned surplus.

The current liabilities of the company in the 1929 balance sheet include cash amounting to $6,813,847, marketable securities aggregating $1,190,667 and accounts receivable totaling $48,285,347. Materials and supplies at cost amounted at the end of the year to $13,122,647.

The largest item in current assets is $157,497,934 for inventories, including crude oil and petroleum products, at cost or market, whichever is lower. An item amounting to $4,962,755 listed as investments in stocks and bonds is not included in the current assets.

Among the current liabilities are accounts payable amounting to $20,494,866, notes payable amounting to $3,000,000 and taxes payable amounting to $3,861,254.

The funded debt statement of the company shows that the 4½ per cent serial gold debentures of 1948 were reduced during the year by $1,000,000 to $19,000,000 and that the General Petroleum Corp. of California 5 per cent first mortgage sinking fund gold debentures of 1940 were reduced from $20,935,000 to $19,584,000.

The Magnolia Petroleum Co. 4½ per cent serial gold bonds of 1935 were reduced by $1,500,000 to $9,000,000.

Standard Oil of Ohio

Standard Oil Co. of Ohio declared regular quarterly dividend of $1.75 on preferred, payable June 2 to stock of record May 9.

Twenty Representative Stocks

The Oil and Gas Journal's weekly average price of 20 representative petroleum stocks listed an the New York Stock Exchange and New York Curb, based on closing quotations for Saturday, was as follows:

Sept. 14	60.40	Dec. 31	48.86
Sept. 21	57.93	Jan. 8	48.56
Sept. 28	58.63	Jan. 15	48.38
Oct. 5	57.00	Jan. 22	47.13
Oct. 12	59.75	Jan. 29	47.46
Oct. 19	58.70	Feb. 5	48.13
Oct. 26	54.59	Feb. 12	47.49
Oct. 31	42.29	Feb. 19	45.85
Nov. 8	48.31	Feb. 26	46.71
Nov. 15	47.61	Mar. 5	46.79
Nov. 22	47.76	Mar. 12	48.30
Nov. 29	48.60	Mar. 19	51.00
Dec. 4	50.60	Mar. 26	51.55
Dec. 11	50.51	Apr. 2	53.26
Dec. 18	49.24	Apr. 9	52.04
Dec. 24	47.36	Apr. 16	53.39

Atlantic Refining

Atlantic Refining Co. and subsidiaries for quarter ended March 31, 1930, report net profit of $1,124,300 after depreciation, depletion, taxes, intangible development costs, etc., equivalent to 42 cents a share (par $25) on 2,685,884 shares of common stock outstanding at end of quarter. This compares with $3,892,600 in the first quarter of 1929, equal after dividend requirements on 7 per cent preferred stock then outstanding, to $1.77 a share on 2,000,000 shares of common stock.

Galena-Signal Oil

Committee of stockholders of Galena-Signal Oil Co. of Pennsylvania has notified depositors under the plan of reorganization that cash and shares of capital stock of the new corporation, Galena Oil Corp., are ready for distribution upon surrender to Equitable Trust Co. of New York of certificates of deposit.

For each deposited share of the old preferred stock, of either class, $75 in cash and two shares of new stock will be given in exchange. For each deposited share of the old common stock one share of new stock will be given. No fractional shares of the new stock will be issued, but instead cash will be paid at the rate of $7 a share.

Imperial Oil

In the annual report of Imperial Oil, Ltd., for 1929, C. O. Stillman, president, states:

"During the year the business of the company experienced a marked increase, which by reason of the lower range of prices of products was not entirely reflected in earnings. While the turnover was larger by 9 per cent than in 1928, earnings from operations increased 4 per cent.

"Earnings derived from investments were 32 per cent of the aggregate income, which was $26,350,309, or 99 cents a share on the 26,490,741 shares outstanding on December 31, 1929. This compares with $22,963,264 in 1928, which would be 87 cents a share on the present basis of issued stock.

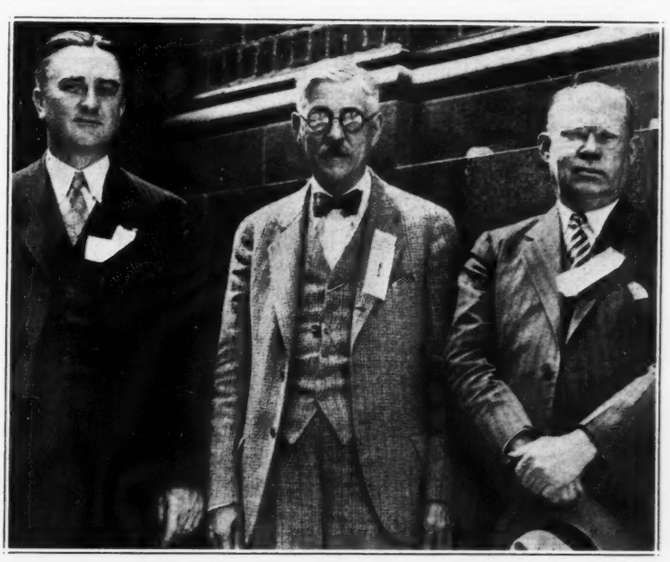
"The revenue derived from International Petroleum Co., Ltd., the company's principal subsidiary, amounted to $6,165,511 in 1929, compared with $3,078,030 in 1928."

On April 15, 1929, shareholders of Imperial Oil, of which Standard Oil Co. of New Jersey owns 18,800,000 shares, approved increase in authorized capital stock to 32,000,000 shares of no-par value. Four new shares were exchanged for each old share of no-par value.

Pierce Petroleum

Report of Pierce Petroleum Corp. and subsidiaries for year ended December 31, 1929, shows profit of $1,067,402 after interest, provision for losses on accounts and notes receivable, depreciation and depletion. This compares with profit of $1,052,894 in 1928. No mention is made of federal taxes in either year. Capital

LEADERS OF INDEPENDENT PETROLEUM ASSOCIATION



Left to right: Wirt Franklin, president; J. I. Cromwell of Muskogee, director, and Tom E. Cranfill, president of the Texas division and director of national organization.

stock outstanding consists of 10,500 no-par shares of $6 preferred and 2,500,000 no-par shares of common stocks.

Penn-Mex

Penn-Mex Fuel Co. (controlled by South Penn Oil Co.) reports for year ended December 31, 1929, net profit of $283,510 after expenses, depreciation, depletion, taxes, etc., equivalent to 71 cents a share (par $25) on 400,000 shares of stock. This compares with $1,965,701 or $4.91 a share in 1928.

NEW POTENTIAL GAUGES IN GREATER SEMINOLE

Umpire Ray M. Collins' instructions to operators in the Greater Seminole Field in Oklahoma in regard to taking potentials in May for the purpose of basing the production of the pools to June 30, are as follows:

The potential of all leases in the Greater Seminole area, excepting the flush pools, has been determined by applying the decline curve equal to 3 per cent a month. A great many adustments have been made by taking five-day gauges on leases which were apparently out of line.

(1) As the 3 per cent decline has been in operation for six months it is thought advisable to take a new potential of all pools prorating under this method. Therefore St. Louis, Maud, Mission, Carr City, Pearson and old Earlsboro will be open to full production from May 1 to May 15, inclusive, and the average daily production from each lease during this period will constitute the potential for May 16 to May 31 and the allowed production for this period will be 40 per cent of the potential.

(2) Seminole, East Seminole, Bowlegs, Searight, Little River and the shallow sand at Allen will be open to full production from May 17 to May 31, inclusive, and the average daily production for each lease will constitute the potential for June 1 to June 30, and the allowed production for June will be 70 per cent of the potential. Due to the above named pools in this paragraph (2) being opened to full production during the last half of May, it will be necessary to prorate these pools to 40 per cent of their present potentials for the period May 1 to May 16, inclusive.

(3) The superintendents of the leases in the areas are designated as representatives of the operators, and it shall be their duty to witness the gauging of production on adjoining leases. As it would be impractical for one company representative to witness the gauging of all adjoining leases for the entire 15-day period, I suggest that the superintendents check the production of offset leases in the following manner: Take the stock of oil on hand on the day of commencing the gauges and on the day of completion, if available, obtain the pipe line runs for the 15-day period. If the stock on hand at the completion of taking gauges is less than when commencing, add the difference to the pipe line runs and the total sum will equal the production for the period, if the stock has increased—subtract from the pipe line runs and the difference will be the production for the period.

LITTLE ACTIVITY SEEN IN REFINED MARKET

(Continued from Page 28)

tinent refining points and St. Louis, it is obvious that Mid-Continent operators cannot expect to compete with natural gas.

It is already a factor in the fuel oil market and will increase in importance when industrial gas becomes available in Chicago area, the other large consumer of fuel oil. The only obvious solution to this competitive situation so far as the refiner is concerned is the expansion of cracking facilities so that fuel oil output is reduced to a minimum.

Gasoline and Naphtha

Both buyers and sellers agree the domestic demand for gasoline has slowed up since the fifteenth of the month. Many jobbers filled their storage and had enough material in transit before the middle of the month to supply all April requirements. Spot sellers report a dearth of business and price concessions have not materially increased the demand.

A little May business has been placed. Orders for delivery over the first 15 days of May have been made on a basis of present prices. The sellers expect the demand to improve after early in the month and are predicting a tighter market than now prevails. For that reason most of them are not willing to take on May business at the low of the present market.

The higher gravity grades were being quoted over a price range of one-half cent. The 60-62 400 endpoint was quoted at 7¼ to 7¾ cents; 64-66 390, 7½ to 8 cents; and 375 at 7⅝ to 8¼ cents. The 350 and 360 grades were strong at a low of 8⅛ cents.

Kerosene

Kerosenes are soft. Practically all refiners are still quoting 4¼ to 4½ cents for the 41-43 water white grade. However, a few shipments mostly for resale, were made under that spread in Oklahoma and other points quoting on a Group 3 basis. The 42-44 grade was freely available at a price range of 4½ to 4¾ cents.

The supplies of kerosene are so large that price improvement has not been possible. Predictions are now heard that the market will continue low over the next few weeks at least.

Natural Gasoline

Natural gasolines are about the only product that are holding their own in price. Grades AA, B, BB and C were steady at a flat price of 6½ cents with sales of Grade A at 6½ to 6⅝ cents. The large buying continues to come from major manufacturers who have contracts in excess of their own plant output.

Fuel Oil and Gas Oil

Fuel oil and gas oil prices also reflect weakness. The quantity offered on the spot market from week to week in Oklahoma is not large and comes from less than one-third of the refinery operators but competitive conditions are such that price concessions are the rule.

The industrial demand for fuel oil is not as active as it was in February and March and due to the close of the furnace oil season the high gravities are not bringing the premium prices of the winter months. Sales of the low gravity grades were being made as low as 55 cents with a price range as high as 95 cents for the high gravity low cold test material.

The demand for U.G.I. gas oil is also less. Sales as low as 2¼ cents were reported last week but on Monday and Tuesday 2⅜ cents was the low quotation reported. Charging stock for cracking units was available at a low of 2½ cents.

Furnace oil distillates are so inactive that it is difficult to determine the market. If prices continue low it is probable that there will be considerable buying for storage purposes within the next 30 days. Sales of specification furnace oils as low as 2¾ cents have been made.

Lubricants and Wax

The demand for neutral oils and cylinder stocks as reported by the few manufacturers in Oklahoma varies from "fair" to "strong." Prices are unchanged. Wax prices continue at the low levels which became effective early in April.

SAYS BUCKET OF COAL MAY REPLACE GASOLINE

NEW YORK, Apr. 26.—Automobile owners need not worry about a shortage of motor fuel, for the oil supply is far from running out, and other fuels than gasoline may be developed for automobiles, Thomas T. Read, Vinton professor of Mining Engineering at Columbia University, said in a statement.

"The only people who have grounds for immediate worry," Dr. Read declared, "are the petroleum refiners, who in 1929 made 420,000,000 gallons more gasoline than they could sell, and so had to add it to their already large stock.

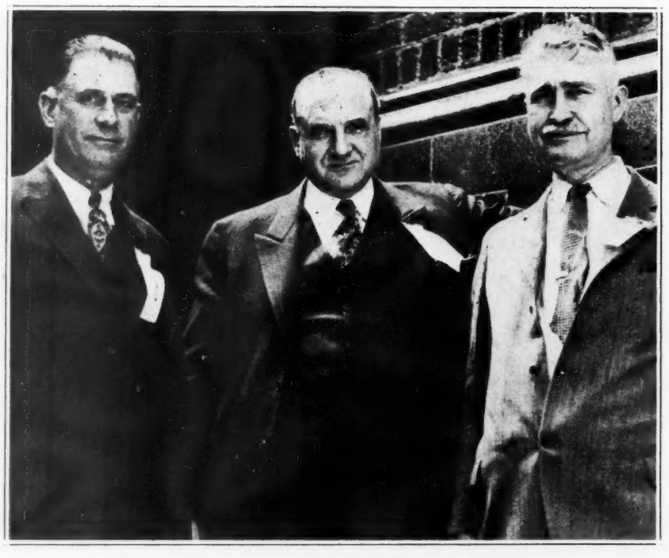
"Only a little over one-third of petroleum is converted into gasoline at present prices, but with the incentive of higher prices it probably could be made to yield nearly twice as much," Dr. Read said. "We could stand higher prices for gasoline if we got more work out of it, for at present not more than one-tenth of the energy in the gasoline is turned into useful work, and scarcely more than one-twentieth of it in the actual job of propelling the machine along the road."

Research men and manufacturers, Dr. Read said, are studying the possibility of using other than liquid fuels for motor cars. He predicted that it would be possible for the motorist of the future to carry a bucket of coal and produce his own gas as he went along.

NEW WELL IN POLAND

The well, Mina, of the Limanowa Co. found shallow oil at Mraznica, Poland, at a depth of 482 meters. Approximately 1,085 bbls. have been taken from the well.

PROMINENT IN INDEPENDENT PETROLEUM ASSOCIATION



Center: Joe Danciger, director of Texas division and national organization; Van S. Welch (left), president New Mexico division and vice president national association, and William Dooley (right), secretary-treasurer, New Mexico division and director national association.

Late Fields

(Continued from Page 40)

in the area. The well is the No. 1 Mezger, SW cor. SE NE, Section 21-20-10w. Oil was found in the Silicious lime at 3,368-73 feet, and a swabbing test is to be made. After the new well is swabbed for 72 hours the test will be shut in for 45 days under the proration agreement. The other producing wells in the area are now pinched to 50 bbls. a day.

The State's deepest drilling test is Watchorn Oil & Gas Co.'s No. 2 Morrison, in Section 20-32-21w, Clark County. The test encountered a hole full of water at 6,211-13 feet, and will drill deeper after the casing is underreamed to shut off the water. The test is expected to be drilled to a total depth of 7,000 feet.

The Dixie Oil Co. and Amerada Petroleum Corp.'s No. 1 McCarty, in Section 22-25-17w, Edwards County, has cemented the showing of gas at 4,560 feet and is drilling to the Silicious lime. The last report the test was drilling at 4,800 feet. The Silicious lime is expected at 5,050 feet.

NORTH CENTRAL TEXAS

FORT WORTH, Tex., Apr. 29.—Gulf Production Co.'s No. 1 J. T. Donald, located in the J. Guffey Survey, which encountered sand at 2,655 feet and was estimated good for 30 bbls. is now drilling deeper. This is a wildcat discovery, 17 miles southwest of Gainesville, Cook County, and an exceptionally interesting test.

SOUTHWEST TEXAS

SAN ANTONIO, Tex., Apr. 29.—Darst Creek allowable runs will be increased beginning with May 1 to 23,830 bbls. daily to be run by Magnolia, Humble, Texas and Louisiana. This compares with daily allowable runs of 12,698 bbls. for period April 16-30.

CONTINENTAL'S REPORT

PONCA CITY, Okla., Apr. 28.—The Continental Oil Co. of Delaware's report shows net earnings of $523,302 for the first quarter of 1930. Continental of Maine and the Marland Oil Co. showed a combined loss last year of $1,641,554 for the first period. The improvement therefore is $2,164,857.

Gross operating income for the past quarter is shown to be $19,967,218, from which the following operating charges are deducted: Operating and administrative expense, $8,483,942; merchandise costs, $5,655,184; taxes, $399,451; intangible development costs, $1,430,066; depletion and lease amortization, $1,274,139. Depreciation, retirements and other amortization, $2,129,787.

The company's current assets are shown to be $58,917,883 and total assets are $197,145,142 as contrasted with total current liabilities of $13,011,361.

RUSSIAN OIL TRADE

WASHINGTON, D. C., Apr. 26.—Notes on the foreign trade of Russia in 1928-29 covering relations with Germany, England, United States and France include interesting statements concerning the Russian oil industry and its export trade. The sales of petroleum and petroleum products to Germany during the fiscal year 1927-28 amounted to 21,432,000 rubles (the ruble equals $0.5146) which trade was increased in the fiscal year 1928-29 to 30,782,000 rubles.

Russia's chief exports to England for the fiscal year 1927-28 included 432,388 metric tons valued at 17,139,000 rubles increasing in the fiscal year 1928-29 to 734,921 metric tons valued at 31,044,000 rubles. Russia's purchases of equipment from the United States for its petroleum industry amounted in 1927-28 to $1,263,000 increasing to $9,824,000 in 1928-29.

Russia exported to France in the fiscal year 1927-28 petroleum products aggregating 358,124 tons valued at 15,007,000 rubles, the exports falling off slightly to 352,288 metric tons valued at 14,414,000 rubles in the fiscal year 1928-29.

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TO the refining division of the petroleum industry McKee offers a triple service.

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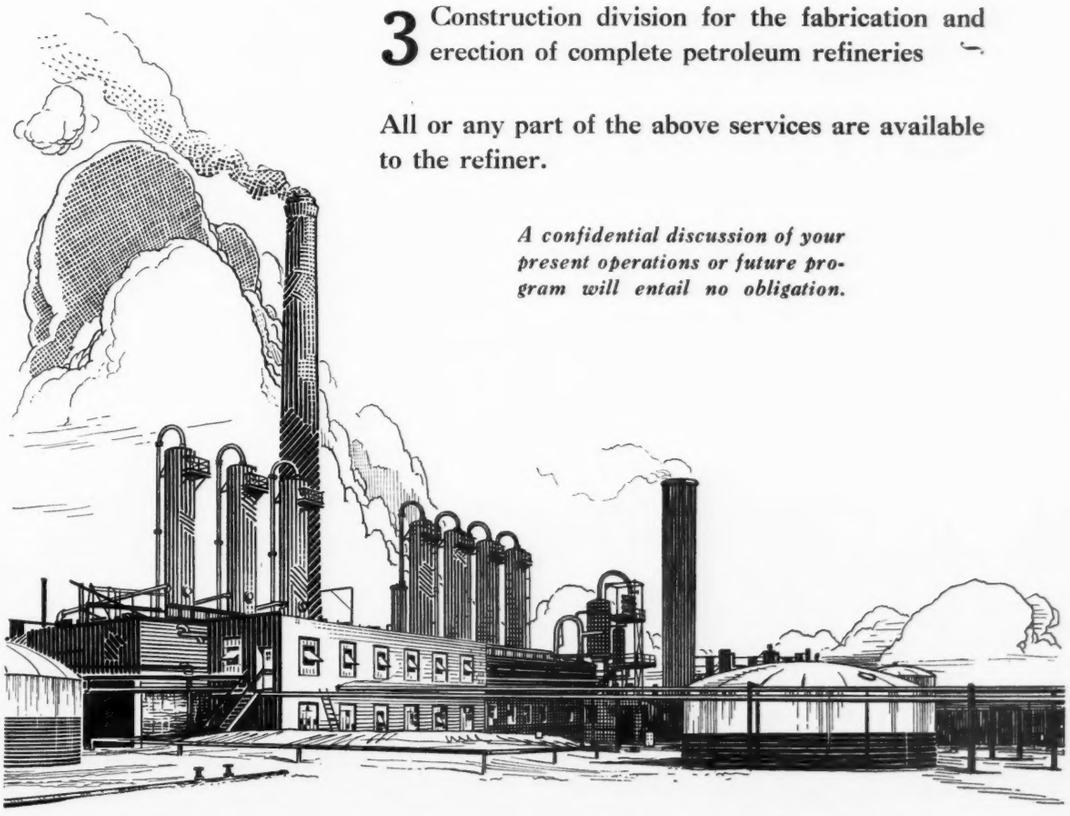

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Of Interest to Sales Departments

Exports of Crude Oil And Refined Products Show Slight Increase

By Charles E. Kern
Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Apr. 26.—Exports of petroleum and products during February were valued at $41,047,115, compared with $39,884,540 in February, 1929, according to the monthly summary of the Department of Commerce.

During the first two months of 1930 the value of petroleum and products was $87,838,691, compared with $87,425,875 during the first two months of 1929.

During February 1,730,519 bbls. of crude petroleum valued at $2,346,127 were exported, compared with 1,678,300 bbls. valued at $2,115,573 for February, 1929. Of this crude oil exported in February, 1930, 1,437,97 bbls. went to Canada, 178,561 bbls. went to Europe, 53,022 bbls. to Cuba, 59,824 bbls. to Japan with only trifling exports to other countries.

Refined oils were exported amounting to 9,400,336 bbls. valued at $36,778,490 compared with 8,925,193 bbls. valued at $35,018,553 in February, 1929.

Gasoline, naphtha and other finished light products exported in February amounted to 4,835,064 bbls. valued at $20,783,233, compared with 3,796,941 bbls. valued at $17,496,659 in February, 1929.

Of the gasoline exported in February, 1930, 4,344,243 bbls. were in bulk and 490,821 bbls. were in containers, showing that 9.85 per cent of the total shipments were in containers.

Of the gasoline that went abroad in February, 1929, 3,421,825 bbls. were in bulk and 375,116 bbls. were in containers, showing that of the gasoline exported in February, 1929, 10.12 per cent was in containers.

This indicates a decrease of 0.27 per cent in the quantity of gasoline shipped in containers in February, 1930, compared with the percentage of shipments in containers in 1929.

Of the gasoline shipped in February, 1930, the United Kingdom took 1,430,706 bbls. or over one-third of the whole. France took 773,196 bbls., Australia 363,745 bbls., the Argentine 294,453 bbls., Canada 167,721 bbls., Italy 180,343 bbls., Denmark 113,571 bbls., the Netherlands 122,212 bbls., Spain 130,361 bbls., Panama, 110,549 bbls., Cuba 102,568 bbls., Brazil 148,288 bbls. and Germany 85,061 bbls.

Illuminating oil shipped in February amounted to 1,197,974 bbls. valued at $5,326,573, compared with 1,582,320 bbls. valued at $6,696,129 for February, 1929. Of the quantity shipped in February, 1930, 767,519 bbls. were in bulk and 430,455 bbls. were in containers.

Gas and fuel oil exported in February, 1930, amounted to 2,498,729 bbls. valued

(Continued on Page 150)

BUILD TWO MARINE TERMINALS

Cities Service Refining Co., with headquarters at Boston, has begun work on two new marine terminals on the Atlantic seaboard, one at Halifax, and the other at St. John, New Brunswick.

From these two terminals, each of which will have tankage of over 2,000,000 gallons, Cities Service gasoline will be shipped in tank cars to the many tank stations of the Irving Oil Co., Ltd., the second largest marketer of gasoline in the maritime province.

The Irving Oil Co., Ltd., owns and operates 26 rail terminals, 35 filling stations, and leases to dealers throughout the maritime province 900 gasoline pumps and tanks.

RECENT FIGURES ON COLOMBIA CRUDE AND GASOLINE PRODUCTION

Gasoline production at the Tropical Oil Co.'s plant at Barranca Bermeja, Colombia, averaged 928 bbls. daily during the first eight months of 1929, according to official figures compiled by Luis Maria Algarra, expert acccountant of the Colombian Petroleum Department. At this daily rate, the 1929 production would be approximately 340,000 bbls., as compared with 262,318 bbls. produced at the refinery during 1928. The Barranca Bermeja refinery, which now has a rated capacity of 5,000 bbls., began operations in 1922. In the preceding year, a small refinery was operated in Infantas.

Colombian crude oil production, during the first eight months of 1929, reached a total of 13,476,118 bbls., which would indicate an annual production during 1929 of approximately 20,240,000 bbls., as compared with 19,896,797 bbls. during 1928. Crude oil exports from Colombia during the first nine months of 1929 totaled 13,979,838 bbls. After allowing for crude losses and field consumption, the Colombian government received royalty oil equivalent to 10 per cent of the net production, or 997,751 bbls. during the first six months of 1929.

Beginning with 1927, the crude oil production figures include the output of natural gasoline which is mixed with crude in the field. The natural gasoline plant began operations on January 1, 1927, and produced 77,505 bbls. during that year and 244,850 bbls. during 1928. Part of the "dry" gas is used for repressuring, seven wells being used for repressuring at the close of 1928.

The following table summarizes the annual production of crude oil in Colombia:

Crude Oil Production in Colombia

Year—	Bbls.
1921	66,750
1922	322,786
1923	424,875
1924	444,744
1925	1,006,708
1926	6,443,587
1927	15,014,474
1928	19,896,797
First 8 months, 1929	13,476,118

The bulk of the crude oil produced in Colombia is transported by pipe line to the terminal at Mamonal, from where it is exported. The first oil through the pipe lines reached the Mamonal terminal on June 10, 1926, the receipts for the first day being 19,033 bbls. On July 3, 1926, the Standard Oil Co. of New Jersey tanker "T. J. Williams" took the first cargo of 88,173 bbls. of Colombian crude. The capacity of the pipe line was later increased and present shipments are slightly under 54,000 bbls. daily. The following table shows the quantities of crude oil exported from Colombia:

Crude Oil Exports from Colombia

Year—	Bbls.
1926	4,699,797
1927	13,679,317
1928	18,106,038
First 9 months, 1929	13,979,838

The following table shows the quantity of crude oil refined and the products obtained in Colombia:

OUTPUT OF REFINED PRODUCTS IN COLOMBIA
(Barrels of 42 gallons each)

Year—	Crude run	Gasoline	Kerosene	Gas oil and Diesel oil	Fuel oil
1921	5,770	691	642	.....	4,341
1922	199,541	25,294	23,491	7,176	138,677
1923	340,615	44,828	62,512	8,453	213,294
1924	295,488	51,587	50,837	8,485	201,517
1925	587,022	92,572	45,756	15,404	421,263
1926	737,101	130,393	49,604	18,570	523,232
1927	1,206,499	215,555	56,224	25,132	893,135
1928	1,474,642	262,318	61,151	25,684	1,113,921
First 8 months, 1929	(*)	225,529	51,338	17,045	861,627

*Not available, but estimated at 1,154,750 bbls.

SURVEY SHOWS LUB OIL SALES HAVE INCREASED

Milwaukee motorists consumed a total of 5,827,668 quarts of oil during the year ending January 15, 1930, according to figures in the newly issued 1930 edition of "The Milwaukee Journal Consumer Analysis." A considerable increase in the consumption of oil in this territory is shown, each family consuming an average of 4.9 quarts of oil per month in 1929, as compared to 4.2 quarts per month the previous year.

The analysis shows that a considerably larger number of Greater Milwaukee families owning passenger automobiles purchased their oil from garages than purchased gasoline from these outlets, although by far the majority bought their oil at filling stations. According to the survey, 85.1 per cent of the families purchased their oil at filling stations in 1929, as against 84.8 per cent in 1928; 13.3 per cent bought at garages as compared to 12.8 per cent the previous year; 7 per cent bought at either garages or filling stations and 0.9 per cent purchased from miscellaneous outlets.

Passenger car owners are becoming more insistent in demanding a certain brand, according to the chart which shows that 92.5 per cent insist on a particular brand of oil, whereas the previous year the percentage was 82.6 per cent. Only 7.5 per cent of the families surveyed indicated that they took any brand of oil without regard for name.

The analysis affords a cross section of the 170,000 families in the Greater Milwaukee trading area and is based on personal interviews with better than one out of every 20 families in order to insure an accurate check. Every type of family and income class is represented.

Greater Milwaukee, with more than 170,000 families, is considered a representative trading area. Although conditions are not identical with those of other districts, the figures included in the book will prove helpful to merchants, manufacturers and advertising agencies in other territories as indicative of possible sales conditions and a general buying trend.

ANNOUNCE SHELL RADIO SERIES

The Shell Petroleum Corp. is sponsoring a series of radio programs to be broadcast over the National Broadcasting Co.'s chain each Monday night from 8:30 to 9 o'clock central standard time, beginning April 28. Thirty eastern and midwestern stations will be included in the chain. Features on the Shell program each Monday will include a 32-piece orchestra under the personal supervision of Adolphe Dumont, Chauncey Parsons and Fred Waldner, tenors, the Tom, Dick and Harry trio and the Shell quartet. A. S. Kaney will act as master of ceremonies.

Market Policies of Naphtha Syndicate To Remain the Same

By Charles E. Kern
Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Apr. 26.—"French petroleum interests were somewhat alarmed by rumors that contracts had been signed by the Soviet Naphtha Syndicate with foreign oil syndicates for large quantities of oil which might seriously compromise the favorable conditions controlling Russian oil imports into France," according to Vice Consul Swanson writing from Paris.

It was even stated in several French journals that, in the near future, Russian oil would be sold in France only through the intermediacy of foreign oil syndicates by an international consortium. It appears, however, that these rumors have been contradicted by Soviet oil representatives in France, who assert that the Soviet Naphtha Syndicate will continue to maintain its entire commercial independence and will not fail in its contracts with French importers.

Attention is being directed to the increasing importance of Russian oil imports in the European market, and especially in France. Total oil exports from Russia in 1929 are given as more than 3,500,000 metric tons, including the purchases of the French Navy.

In the year 1926-27 France imported 387,000 metric tons; Spain, 69,000; and Belgium, 71,000. In 1927-28 France took 355,000 tons; Spain 220,000; and Belgium 94,000.

In 1928-29 France imported 389,000 metric tons; Spain 304,000; and Belgium 113,000. Purchases made under contract for the needs of the army and navy are not included in these totals.

Although diplomatic relations between France and Russia were resumed several years ago no commercial treaties as yet have been signed with the Soviet government. Under these conditions, Rus-

(Continued on Page 150)

USE GLASS BOTTLES FOR OIL

The use of glass bottles with sealed caps is being encouraged in marketing sections where the practice of substituting oils is found to exist. As a means of protection the refiner or marketer fills these bottles at a centralized depot and then distributes the bottles in cases by truck. The bottles being used are 18 inches long and are small in diameter, making them easy to handle. They may be stacked in crates and returned to the filling depot with a resultant saving in container cost in many instances. An analysis of the cost shows that the average bottle is used 100 times. A special draining device and washing mechanism is used to recondition the bottles prior to being refilled.

STANDARD BUYS LOCATION

Standard Oil Co. of Kentucky has purchased a 14-acre tract east of Owensboro, Ky., for a bulk station. Plans for the buildings, tanks and other equipment of the company are being prepared, and building will be started in a short time. The company's present bulk station has been inadequate.

With a railroad switch built from the main line of the Louisville & Nashville and the old L.H.&St.L.R.R. years ago, and a river landing on the north side of the tract of land, transportation facilities will be complete. Barge tanks will be possible as the Ohio Oil Co. and Illinois Pipe Line Co. now have a landing dock on the north end of the tract of 14 acres for barges.

"Tom: you should send for these three books too—

They answer every Pressure and Level Control Problem"

That's exactly what these three books do. Every possible pressure and level condition—every variation—every practical application—all are thoroughly explained with blue print drawings, capacity tables and diagrams.

These three books should be in the reference files of every refinery, natural gasoline and natural gas plant, every pipe line company. They are not mere catalogs but meaty, practical installation information that every man who is faced with pressure and level control problems will be glad to turn to for guidance.

The McAlear line is not a *one*-item line. It meets every oil industry pressure and level control condition with a specialized product. With McAlear, a variation in conditions may call for a control slightly different in design or capacity—never a makeshift or misapplication but *always* a control capable of doing the job RIGHT. And the line is serviced and sold by a corps of sales engineers who are anxious and capable to counsel with you.

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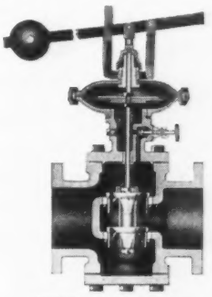

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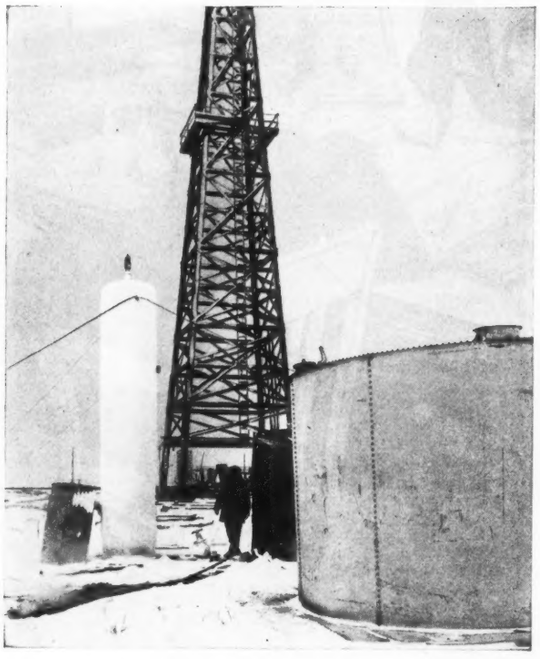
In 1929

13 Wells Completed by Sullivan System Produced More Than 30 Others



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Sullivan Diamond Drill cuttings are fine. They are washed away with oil. There is nothing in the hole to freeze. During 1929, 13 Sullivan Core Drilled Wells in Turner Valley produced more than the 30 other wells in the field.

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SULLIVAN CORE DRILLS

Protect Oil Investments

CENTRAL WEST FIELDS

(Continued from Page 60)

feet. Same parties' No. 30 Flora Dean, Section 13, same township, pumped 5 bbls. from 447-70 feet, total depth 482 feet, and No. 31, same farm, pumped 5 bbls. initial from 466-505 feet, while No. 33, same farm, pumped 5 bbls. from 488-532 feet.

In Licking County, Hope Construction & Refining Co.'s No. 6 Sarah Rector farm, Section 9, Perry Township, reported good for 10 bbls.

In Muskingum County, Clay Township, No. 1 on State of Ohio land, and owned by Noah Andrews and others, reported at 90 bbls. initial.

In Meigs County, Sutton Township, Tyree and others' No. 15 on the William Carnahan farm, good for 5 bbls.

INDIANA

Only one well was reported from Indiana, being F. B. Hillis and others' No. 4 well, 600 feet from the south line and 200 feet from the west line of the W. H. Lindy, NW, Section 31, Clay Township, Pike County, which pumped an initial of 34 bbls. at a total depth of 1,303 feet. L. G. Gee and others abandoned old No. 1 on the J. M. Peak, NW, Section 28, Veale Township, Daviess County.

Twin Creek Oil Co. is drilling No. 4 on the Elmore Williams farm, in Fairbanks Township, Sullivan County.

Ohio Oil Co. is reported to be drilling a wildcat near Bristow, in Perry County.

ILLINOIS

Numerous dry holes were the result of the drill in Illinois. In Honey Creek Township, Crawford County, Montgomery-Weger and others' test, 200 feet from the south line and 660 feet from the east line of the A. Carter farm, SE, Section 18, was dry at 995 feet. M. Watson and others' test in the southwest corner of the J. W. Bline farm, NW, Section 13, Prairie Township, same county, was a duster at 970 feet, and the O. R. Oil & Gas Co.'s second test, 200 feet from the north line and 600 feet from the west line of the Noah Gray, NW, Section 1, same township, was dry at 1,000 feet.

The Ohio Oil Co.'s No. 15 well, 650 feet from the south line and 200 feet from the west line of the J. W. Clark No. 2 farm, SW, Section 2, Dennison Township, was dry in the McCloskey sand at 1,794 feet.

Max Oil Co. got a light gas well in No. 10 well, 1,200 feet from the north line and 200 feet from the east line of the Holson-Dorney, SW, Section 18, Wabash Township, Wabash County, at a depth of 1,127 feet.

A wildcat drilled by Goldsmith, Taylor and others, 960 feet from the south line and 400 feet from the west line of the Edward Hortmeyer, NE, Section 1, Breeze Township, Clinton County, is a dry hole, the drill finding no sand at a depth of 1,530 feet.

In the Dupo Field, Sugar Loaf Township, St. Clair County, the Dupo Oil Investment Co.'s No. 1 on the George House lot, in Dupo Townsite, SE, Section 21, was dry. Trenton Rock Oil & Gas Co. got a duster in No. 1 on the Hiram Julius lot, SE, Section 21, same township, at 400 feet.

SLIGHT INCREASE SHOWN IN PETROLEUM EXPORTS

(Continued from Page 148)

at $2,646,693, compared with 2,674,584 bbls. valued at $3,053,544 in February, 1929.

Fuel or bunker oil for vessels in foreign trade not included in domestic exports amounted to 4,058,236 bbls. valued at. $4,224,793, compared with 4,251,805 bbls. valued at $4,414,736 in February, 1929. Of the fuel oil exported in February, 1930, 1,841,600 bbls. were for American vessels and 2,216,636 bbls. were foreign vessels.

Lubricating oil exported in February, 1930, amounted to 857,723 bbls. valued at $7,878,064, compared with 860,230 bbls. valued at $7,619,999 in February, 1929.

In February, 1930, paraffin wax amounting to 18,759,085 pounds valued at $748,189 was shipped abroad compared with 25,345,074 pounds valued at $1,324,133 in February, 1929.

Imports

Crude petroleum imported in February, 1930, amounted to 4,321,009 bbls. valued at $4,704,664, compared with 7,015,834 bbls. valued at $7,195,070 in February, 1929.

Of the crude oil imported 1,730,894 bbls. were from Venezuela, 418,000 bbls. from Mexico, 975,347 bbls. from the Netherland West Indies, 937,000 bbls. from Colombia, and 212,000 bbls. from Peru.

Refined oils imported in February, 1930, amounted to 3,215,888 bbls., compared with only 897,305 bbls. in February, 1929.

Of the total refined oils imported in February, 1930, 952,896 bbls. were valued at $3,457,967, compared with 406,447 bbls. valued at $3,548,112 in February, 1929. While the quantity imported in February, 1930, was more than double the imports of February, 1929, the price paid for the larger quantity was less than that paid for the smaller shipment in the same month a year previously.

POLICIES OF NAPHTHA SYNDICATE REMAIN SAME

(Continued from Page 148)

sian oil normally should be subject to the customs duties prescribed by the general tariff, which evidently would be equivalent to an almost absolute prohibition.

A government decree of April 18, 1921, however, permitted the admission of Russian mineral oils into France with the benefit of the minimum customs tariff. Since the passing of this decree, Russian oil has entered France in important quantities, and, in fact, has been considered in France as more or less of a price regulator, as it is sold slightly cheaper than oil from other sources.

Although the Soviet Naphtha Syndicate, represented in France by La Societe des Produits du Naphte Russe, would prefer to handle all imports of Russian oil into France, permission to do so has not as yet been granted by the French government.

It is claimed that Russian oil now supplies about 10 per cent of the needs of the French market, and that, in the case of mazout, 20 per cent of the total import into France is of Russian origin. It is also stated that 40,000 metric tons of Russian oil are supplied yearly to the French colonies.

NEW DECISION IN PERMITS

WASHINGTON, D. C., Apr. 26.—Following a decision by Justice Baily in the Supreme Court of the District of Columbia, Justice Siddons has rendered a decision holding that the Secretary of the Interior is without power to refuse to receive applications for permits for oil and gas exploration on public domain and directing the secretary to reinstate George G. Retherford and Ethel M. McLennan of California and R. L. Paris of Artesia, N. Mex., and to accept an application of W. B. Pyron of Los Angeles for a permit. This follows the action of Justice Baily in four other cases which were heard by him.

OKLAHOMA U. FIELD COURSE

NORMAN, Okla., Apr. 26.—Through its School of Petroleum Engineering the University of Oklahoma is offering an eight weeks' field course in petroleum engineering to open June 4 and close August 1. Under direction of Dr. H. C. George, there will be a study of operations and methods in the Greater Seminole area and the new Oklahoma City oil field. Drilling methods, oil well completion, transportation of crude oil and natural gas, production of natural gasoline and methods of treating and refining crude oil will be covered.

The fee for the course is $50 and registrations should be made with Doctor George before May 10.

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QUEST FOR OIL CHANGES LOOKS OF THE OLD PLACE

John Wyatt, septuagenarian negro, stopped long enough from his work of building a soft drink stand in front of his home in the Oklahoma City oil field to pose for a picture beside his wife, Maria. Years ago John bought five lots on the inner side of a horseshoe bend in the north fork of the South Canadian River and built a little cottage. The patch of ground, near the apex of the horseshoe-shaped area bounded by the stream, is swampy and in times of high water it is flooded.

"Ah cain't jes remember," the aged negro answered when asked how much he had paid for his home site. "About fifty dollahs Ah think."

The place is in the north extension of the Oklahoma City Field. The well shown in the picture above is No. 1 Wyatt, Section 2-11-3, and it is being drilled by the Century Petroleum Corp. Maybe it will be a gusher, but in the meantime throngs visit the well, with thirsts to be quenched, and John is not going to miss the opportunity that lies at his door. While keeping a hopeful eye on the bird in the bush, he is not undervaluing the value of the one in his hand.

CRYSTALLIZATION OF WAX IN PARAFFIN DISTILLATE

(Continued from Page 100)

separated from the waxes by high vacuum distillation, without decomposition, provided the colloid is not carried over by entrainment.

The exact nature of the interfering colloid is problematical, but there is evidently more than one type; and at least one effective type is colorless and lacking in absorptive properties. Should it be possible to remove the crystal inhibitors, either by absorption or by chemical treatment, the wax could be removed by the regular pressing operation. This would eliminate the necessity of cold settling plants and expensive centrifuging installations. Ordinary filtration through fuller's earth will tend to remove some of the interfering colloid.

In conclusion it might be well to restate what has been explained above, that good quality pressable paraffin distillate can be prepared from the crude without decomposition provided the paraffin distillate cut has been fractionated sufficiently to eliminate possibility of an excessive amount of the high boiling crystal inhibitors being carried over by entrainment.

NEW OIL LEGISLATION LIKELY IN ARGENTINE

A Buenos Aires dispatch to the New York Times says members of the Argentine senate's special petroleum committee, who have just returned from visiting government and private oil fields in the province of Salta, indicate that the senate will not pass a bill which has been before it for two years designed to nationalize petroleum workings and give the central government a monopoly on the exploitation and production of petroleum and its products.

The chamber of deputies passed the bill two years ago but the senate refused to pass this measure, which had been supported by President Irigoyen. The senate appointed a special committee to study the petroleum problem and recommend legislation, and members of this committee express themselves as favoring nationalization of petroleum lands but oppose national operation of the fields or expropriation of private fields or monopolization of sale.

The senate committee expects to introduce a substitute measure next month which would give the national government strict supervisory powers over foreign petroleum companies. The Argentine senate is composed of representatives of the provincial governments and every time a measure comes up for consideration it will be vigorously opposed by the provinces on the ground that it deprives them of their natural resources and of their inherent right to control the granting of concessions.

LEGAL

SALE OF OIL AND GAS LEASES, DEPARTMENT OF THE INTERIOR—Shreveport, Louisiana, Notice is hereby given that the following described land in three units in the known geologic structure of the Monroe Gas Field, Louisiana, are offered for lease under Section 17 of the Act of February 25, 1920 (41 Stat. 437), at the customary sliding scale of 12½ to 33⅓ per cent of the quantity or value of the oil produced (except as to SW¼ NE¼ Sec. 26, T. 20 No., R. 3 E., in which only the gas content has been reserved to the United States) of 12½ to 16⅔ per cent of the value of the gas produced and of 16⅔ per cent of the value of the natural gas gasoline produced from each unit in accordance with the royalty schedule in the regular lease form and the rental as required by Section 17 of the said act: Unit No. 1—T. 18 N., R. 4 E., Sec. 24, Lot 3, 9.24 acres. Unit No. 2—T. 19 N., R. 5 E., Sec. 10, SE¼ SE¼, 39.82 acres; T. 20 N., R. 5 E., Sec. 34, SE¼ SE¼, 40.07 acres. Unit No. 3—T. 20 N., R. 3 E., Sec. 26, SW¼ NE¼, 39.75 acres. All Louisiana Meridian, Louisiana. The units are to be offered separately and are to be so considered as a basis for the payment of royalty, but all the units may be included in one lease if awarded to one bidder. The lessee will be required to proceed with reasonable diligence to install standard or other efficient drilling outfits and equipment and within three months of delivery of the executed lease to commence drilling one well on each tract of the leasehold. The drilling of each well shall be continued to production or to a point where the well is demonstrated unsuccessful; and if any well be demonstrated unsuccessfull additional wells shall be drilled in lieu thereof until one productive well shall be drilled on each tract or the tract proved barren. Neither more nor less than one productive well shall be drilled on any tract without consent in writing first obtained from the lessor. After drilling operations shall be initiated and thereafter prosecuted continuously and diligently in accordance with the Federal oil and gas operating regulations and with the oil and gas conservation laws of the State of Louisiana. Said leases will be offered for sale by public auction at the Federal Court Room, Shreveport, Louisiana, at 10 a.m. on May 3, 1930, to the bidder or bidders offering the highest bonus for the leases on the terms specified. The successful bidder must deposit on the date of sale with the offficer in charge of the sale certified check on a solvent bank, or cash, for one-fifth of the amount bid by him, and file the showing of qualifications to receive a lease required by Section 15 of said regulations. Bidders are warned against violations of the provisions of Section 59, U. S. Criminal Code, approved March 4, 1909, prohibiting unlawful combination or intimidation of bidders. The right is reserved to reject any or all bids in the discretion of the Secretary of the Interior. James W. Neal, Officer in Charge.

WILDCAT OPERATIONS IN OKLAHOMA

(Continued from Page 42)

E. L. Love et al's No. 1 White, SE cor. NW Sec. 9-24-6w ..... Shut down 5,566 ft.

GRADY COUNTY

J. V. Bailey's No. 1 Hubbard, C NE NW Sec. 1-10-6w.. Shut down 100 ft.
J. M. Henry et al's No. 1 Abraham, SE cor. NW Sec. 4-5-8w ..... Rig.

GRANT COUNTY

Gypsy Oil Co.'s No. 1 Belderbeck, C SE SE Sec. 27-28-7w . Wilcox 5,647 ft.; abandoned 6,074 ft.
Baucher et al's No. 1 Deadman, SW SE Sec. 12-28-4w .. Fishing 4,737 ft.
Cowden et al's No. 2 Vollmer, CEL NE SW Sec. 22-25-4w. Shut down 5,640 ft.
Otstot's No. 1 Tabor, C NE NE SE Sec. 23-26-3w ..... Drlg. 4,995 ft.

GARVIN COUNTY

Nelson et al's No. 1 Strickland, NE SW Sec. 10-4-3 .... Drlg. 2,130 ft.

GREER COUNTY

I. T. I. O. et al's No. 1 fee, C SW NE Sec. 17-6-24w .... Fishing 2,286 ft.

HARMON COUNTY

Harmon-Tex Oil Co.'s No. 1 Hoadley, NE cor. Sec. 17 4-24w ..... Drlg. 1,300 ft.
S. M. Stauffer's No. 1 Castleman, SW NE Sec. 8-4-26w .. Shut down 625 ft.

HARPER COUNTY

Empire's No. 1 Bruce, C NE SW Sec. 12-25-20w ..... Drlg. 3,800 ft.
Sinclair Oil & Gas Co.'s No. 1 Howell, C SW SW Sec. 14-26-24w ..... Drlg. 3,470 ft.

HASKELL COUNTY

Mid-Western's No. 1 Polster, C NE SE Sec. 33-10-22 .. Drlg. 2,375 ft.
Holden's No. 1 Phillip, SE cor. Sec. 3-9-18e ..... Shut down 1,860 ft.
Marion Oil's No. 1 Sanders, NW NE SW Sec. 10-9-18e .. Shut down 2,387 ft.
Sanboise Gas' No. 1 Unknown, SW NW SE Sec. 32-9-21e.. Shut down 2,100 ft.

HUGHES COUNTY

Wright et al's No. 1 Ott, SE SW Sec. 15-5-11 ..... Rig.
Canady et al's No. 1 Kanard, NW SW Sec. 29-9-12 .... 1,000,000 ft. gas 2,284-90 ft.; total depth 2,815 ft.; drlg. 3,218 ft.
Irwin et al's No. 1 Jones, SE NW Sec. 30-5-10 ..... Fishing 3,100 ft.

KAY COUNTY

Alco Royalty Co.'s No. 1 Wolf, SE SW SE Sec. 34-26-2w. Location.
Waggoner Pet. Co.'s No. 1 Hinkle, C SW NW NW Sec. 3-26-3 ..... O.W.D.; total depth 2,430 ft.; drlg. 2,630 ft.
Blankenship Petroleum Co.'s No. 1 Hansen, SW NW SW Sec. 17-27-2 ..... Shut down 50 ft.
Skelly and Empire's No. 1 Maple, SW cor. Sec. 20-27-4 .. Drlg. 3,512 ft.

KINGFISHER COUNTY

Superior Oil Co.'s No. 1 Story, SE cor. Sec. 25-19-5w .... Fishing 6,285 ft.
Galt Brown's No. 1 Wolf, NW SE Sec. 6-16-7w ..... Shut down 6,015 ft.

KIOWA COUNTY

Merrick Oil Co.'s No. 1 Kelly, NW cor. SE Sec. 20-7-17w. Shut down 1,525 ft.

LEFLORE COUNTY

Red Bank Oil Co.'s No. 1 fee, SE SW NW Sec. 23-9-24 .. Total depth 5,440 ft.; 15,000,000 ft. gas; fishing 5,433 ft.

LATTIMER COUNTY

Limestone Oil & Gas Co.'s No. 1 Murray, NE cor. Sec. 25-5-18 ..... Rig.
Limestone O. & G. Co.'s No. 1 Shaw, NW cor. NE NW Sec. 23-5-18e ..... Drlg. 2,975 ft.

LINCOLN COUNTY

Tom Slick Oil Co.'s No. 1 Hammer, SE NW NW Sec. 35-16-2 ..... Drlg. 4,150 ft.

LOGAN COUNTY

Prairie and Slick's No. 1 Morgan, NW NE Sec. 33-16-1w ..... Drlg. 1,700 ft.
Currier's No. 1 Young, C SW NE SW Sec. 34-17-4w .... Rig.
Haley & Smith's No. 1 Guier, SE cor. SW Sec. 33-18-3w.. Shut down 3,970 ft.

McINTOSH COUNTY

T. C. Young's No. 1 Derrison, Sec. 3-12-15 ..... Fishing 2,325 ft.
Patterson et al's No. 1 Smith, SW cor. NW SE Sec. 32-9-16 ..... Shot 240 qts. 5,446-5,559 ft.; shot went off up hole; fishing.

MURRAY COUNTY

Chieftain Royalty Corp.'s No. 1 Hendrix, SW SE NW Sec. 27-2-2 ..... Drlg. 400 ft.

MUSKOGEE COUNTY

Sioux Oil Co.'s No. 1 Unknown, NW SE Sec. 21-11-19 .... Shut down 1,011 ft.

NOBLE COUNTY

Weaver & Craigin's No. 1 Frederick, C SW NE Sec. 4-24-1w ..... Rig.
Gypsy Oil Co.'s No. 1 Bergstrom, SE NE Sec. 28-22-1w .. Drlg. 4,010 ft.

OKFUSKEE COUNTY

Flynn & Morgan's No. 1 Burton, NE SW SE Sec. 14-13-9.. Drlg. 465 ft.
Irwin et al's No. 1 Allen, SE SW NE Sec. 15-13-9 ..... Drlg. 2,780 ft.
Henry Oil Co.'s No. 1 Harjo, Sec. 36-12-9 ..... Shut down 2,795 ft.
E. L. Robinson's No. 1 Rice, NW Sec. 2-10-9 ..... Location.
Shepard et al's No. 1 Neveas, SE NW SW Sec. 3-12-10.. Shut down 3,661 ft.

OKLAHOMA COUNTY

Prairie and Slick's No. 1 Dill, SE NW Sec. 17-13-3w .... Drlg. 3,060 ft.
Cromwell-Franklin's No. 2 Thompson, SW NE Sec. 15-12-3w ..... Drlg. 4,000 ft.
Warr et al's No. 1 Castle, SW NW Sec. 20-11-3w ..... Drlg. 4,135 ft.
J. F. Cuniff, trustee's No. 1 Church Land, NE SW SE Sec. 17-12-4w ..... Drlg. 5,350 ft.
Magnolia and Ramsey's No. 1 Johnson, C NE SW Sec. 35-13-3w ..... Drlg. 5,780 ft.
Ryan Consolidated's No. 1 Lawton, NE NW Sec. 3-11-2w.. Drlg. 5,960 ft.
Tom Slick Oil Co.'s No. 1 Martin, C NW NW Sec. 13-13-1w ..... T. D. 6,971 ft.; water; plugging back 6,871 ft.; testing.
Hall & Briscoe's No. 1 Holmes, NE cor. SW SE Sec. 10-11-3w ..... Top checkerboard 5,400 ft.; drlg. 5,590 ft.

OSAGE COUNTY

Peters Petroleum Co.'s No. 1, SW cor. NE Sec. 5-22-8 .... Drlg. 1,225 ft.
Kay County Gas' No. 1, C N half NE Sec. 28-24-4 ..... Drlg. 3,408 ft.
Continental Oil Co.'s No. 1, NW SE SE Sec. 24-24-5 ..... Shut down 3,599 ft.

PAWNEE COUNTY

Flynn & Morgan's No. 1 Jones, SW NE Sec. 22-20-5 .... Rig.
Cochran et al's No. 1 Green, NE cor. SW Sec. 15-23-5 .... Rig.

PITTSBURG COUNTY

Empire O. & R. Co.'s No. 1 Williams, C NE SE Sec. 33-7-16e ..... Fishing 3,975 ft.

POTTAWATOMIE COUNTY

Keister & Manning's No. 1 Rowlett, SW SE NE Sec. 30-8-4 ..... Drlg. 4,468-80 ft.; pinched to 100 bbls.
Payne Drlg. Co.'s No. 1 Bullock, SE NE Sec. 22-6-3 ..... Shut down 4,130-4,201 ft.; hole full water; plugged back to Cromwell; made 875 bbls. 24 hrs. 3,595-10 ft.

ROGER MILLS COUNTY

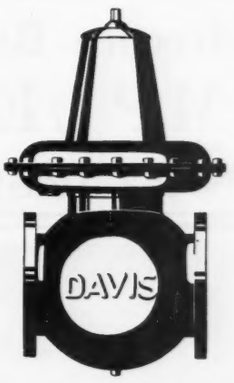
Bucy & Stone's No. 1 Williams, C SW Sec. 23-12-24w ... Shut down 2,245 ft.
L. C. Hivick's No. 1 Davis, C NW NE Sec. 4-11-26w .... Shut down 2,905 ft.

SEMINOLE COUNTY

T. Adkins et al's No. 1 McGilbray, SE NE Sec. 4-8-8 .... Drlg. 500 ft.
Magnolia and Twin State Oil Co.'s No. 1 Harns, SW NE NE Sec. 8-5-6 ..... Drlg. 2,815 ft.
Independent Oil & Gas Co.'s No. 1 Johnson, C NE NE Sec. 33-9-8 ..... Drlg. 3,547-61 ft.; 25,000,000 ft. gas; mudded.
Prairie Oil & Gas Co.'s No. 1 Anders, NW cor. Sec. 23-6-6 ..... Wilcox 3,996-4,000 ft.; water; shut down.
Sunray Oil Co.'s No. 1 Sunday, NW SE Sec. 35-5-5 ..... Location.

WASHITA COUNTY

Southern Inv. Co.'s No. 1 Musie, NW cor. Sec. 10-9-20w.. Shut down 280 ft.



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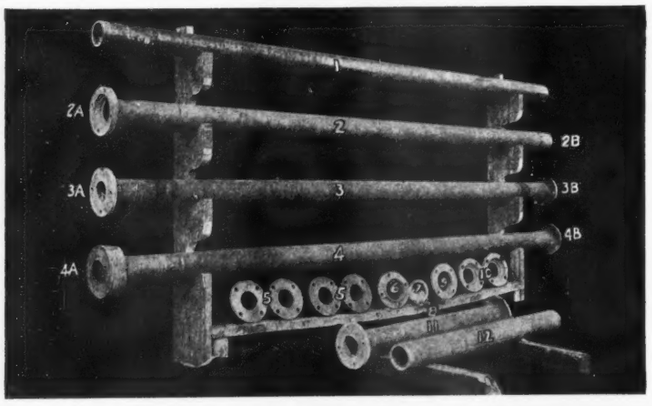

THIS is a group photograph taken to show the comparison from a foundry standpoint between the manufacture of Simplex Piping and standard flanged piping. Figures Nos. 1, 2, 6, 10, 12 refer to Simplex material. Figures Nos. 3, 4, 5, 8, and 9 refer to standard flanged material:

Nos. 1 and 12, plain end pipe cut to specified length

No. 2, Simplex flanged and plain end pipe as it comes from the foundry, cut to specified length

Nos. 3 and 11, finished standard flanged pipe in lengths up to 12 feet

No. 4, standard flanged pipe showing sink head before cut off

No. 5, standard flanged return bend with finish faces

Nos. 6 and 9, Simplex slip gland

No. 7, Simplex ring gasket

No. 8, standard bolts

No. 10, standard return bend with Simplex flanges cast to size. No machine work is required on this material.

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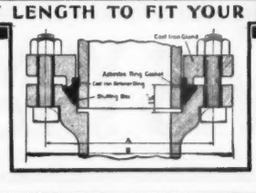

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WOODS COUNTY

Peerless O. & G. Co.'s No. 1 Crowell, C NW NE Sec. 23-28-16w ..... Drlg. 5,320 ft.
Gypsy-Prairie et al's No. 1 Thompson, SE cor. SW Sec. 10-25-15w ..... Shut down 6,104 ft.
Sinclair Oil & Gas Co.'s No. 1 Showwalter, C SW SW Sec. 23-27-16w ..... Shut down 6,790 ft.

WOODWARD COUNTY

Farrond et al's No. 1 Unknown, SE cor. SW SE Sec. 2-22-17w ..... Shut down 1,387 ft.
Prairie Oil & Gas et al's No. 1 Wilbur, NE cor. NW Sec. 22-23-17w ..... Drlg. 6,390 ft.
Burgoyne Brothers' No. 1 Merkins, SW cor. SE NE Sec. 15-21-19w ..... Shut down 1,910 ft.

OKLAHOMA PANHANDLE
CIMARRON COUNTY

Magnolia's No. 1 School Land, C SW NE Sec. 27-5-5 .... Drlg. 100 ft.

TEXAS COUNTY

Palo Alto Oil Co.'s No. 1 Graves, NE SW SW Sec. 23-2-18e ..... Spudding; shut down.
Argus Prod. Co.'s No. 1 Ralston, C SW Sec. 23-6n-14e .. Rig.

SOUTHERN OKLAHOMA
ATOKA COUNTY

Bryant-Croxton's No. 1 Mason, NW NE NW Sec. 4-1s-14 .. Shut down 1,498 ft.
Bookshire's No. 1 Guinn, NW cor. Sec. 18-3s-10 ..... Shut down 100 ft.

BRYAN COUNTY

Bush et al's No. 1 Commerce Trust, NE cor. Sec. 35-6s-9 ..... Drlg. 260 ft.
Johnson et al's No. 1 Ussery, SE SW SE Sec. 14-6s-7e .. Shut down 385 ft.
Slab Oil Co.'s No. 1 Ryle, NW SE SE Sec. 27-6s-7 .... Drlg. 1,015 ft.
Marshall's No. 2 fee, C SW SE NW Sec. 26-5s-7 ..... Shut down; 6-in. csg. 265 ft.
Yale Oil Syndicate's No. 1 Craige, C NW NE Sec. 36-9s-9e ..... Shut down 2,200 ft.

CARTER COUNTY

Campen-Lasater Co.'s No. 1 Anderson, NE cor. SE NE SE Sec. 32-4s-2 ..... Fishing 2,580 ft.

CHOCTAW COUNTY

Choctaw Petroleum Co.'s No. 1 Wilson, SW cor. SW Sec. 15-6s-19e ..... Shut down 1,346 ft.

COMANCHE COUNTY

Pelwin Oil Co.'s No. 1 Tafepirdy, C NW NE NE Sec. 5-1s-9w ..... Location.

COTTON COUNTY

Empire O. & R. Co.'s No. 1 Chambers, NW SE Sec. 8-3s-9w ..... Drlg. 3,980 ft.

JOHNSTON COUNTY

N. A. Neff's No. 1 Chapman, C SW NW Sec. 20-4s-5 .... Location.

LOVE COUNTY

Hobbs et al's No. 1 Roberts, NE cor. SW Sec. 20-6s-3w .. Rig.
Gilcrease Oil's No. 1 Burkhart, NE NW Sec. 13-6s-1 .... Rig.

MARSHALL COUNTY

Wheeler et al's No. 1 Taylor, NE NW NW Sec. 8-7s-6e .. Rig.
Akers et al's No. 1 Spicer, SW SE SE, Sec. 33-5s-7e .... Rig.

McCURTAIN COUNTY

Milton et al's No. 1 Vase, SW NW Sec. 26-6s-21 ..... Shut down 2,287 ft.

STEPHENS COUNTY

Wirt Franklin Petroleum Corp.'s No. 1 McPhail, NW SE Sec. 1-2s-7w ..... Sand 3,954-63 ft.; to test.

TILLMAN COUNTY

Bridwell's No. 1 Pan-te-chee, NE SE, Sec. 4-4s-16w .... Drlg. 835 ft.
Flake's No. 1 Barba, NE SE NE SE Sec. 19-1s-16w .... Drlg. 1,185 ft.
Allen Brothers' No. 1 Howell, SW NE Sec. 13-1-17w .... Shut down 960 ft.
Landfair et al's No. 1 Smith, SE SW SE Sec. 6-2s-16w .. Location.

WILDCAT OPERATIONS IN KANSAS

(Continued from Page 44)

DICKINSON COUNTY

Emery-Curtis & Bryan's No. 1 Hevner, NW SE Sec. 31-13-3 ..... Drlg. 2,012 ft.
Cross' No. 1 Sanden, NE cor. Sec. 12-15-2 ..... Rig.
Hiatt & Durham's No. 1 Wendt, NW cor. Sec. 17-16-2 ... Spudding.
Kruger et al's No. 1 Diche, C NW NE NE Sec. 17-13-4 ..... Shut down 2,935-43 ft.; water.
E. N. Morgan's No. 1 Whithair, NW SE Sec. 9-12-1 ..... Shut down 1,768 ft.

DOUGLAS COUNTY

Steinbuckel's No. 1 Unknown, SW NE NW Sec. 34-14-21 .. Drlg. 880 ft.
Jenkins & Scott's No. 1 Haden, SE NW Sec. 10-12-17 ... Drlg. 1,800 ft.

EDWARDS COUNTY

Skelly's No. 1 Johnson, NE SW Sec. 21-26-17w ..... Drlg. 4,925 ft.
Barnsdall Oil's No. 1 McCarty, NW NE Sec. 31-25-17w .. Drlg. 4,530-46 ft.; 512 bbls. first 24 hours; shut down.
Dixie and Amerada's No. 1 McCarty, SW cor. Sec. 22-25-17w ..... Shut down 4,452-92 ft.; 8,500,000 ft. gas; total depth 4,595 ft.

ELLIS COUNTY

Central Commercial Oil Co.'s No. 1 Helms, SE cor. NE Sec. 2-12-20w ..... Drlg. 585 ft.
Streeter & Stearns' No. 1 Leiker, SW NE Sec. 26-13-20w .. Shut down 1,290 ft.
Byrene et al's No. 1 Fisher, NW SE Sec. 4-11-20w ..... Shut down 1,000 ft.
Rush Oil Co.'s No. 1 Gatewood, NW cor. NW Sec. 4-15-20w ..... Fishing 3,040 ft.

ELLSWORTH COUNTY

Tatlock et al's No. 1 Sackem, C SW SE Sec. 25-17-9w .. Abandoned 3,395 ft.

FORD COUNTY

McNabb et al's No. 1 Fowler, C SE Sec. 26-27-22w ..... Shut down 400 ft.
Swain et al's No. 1 Kenthorne, C NW Sec. 21-25-24w .... Drlg. 2,005 ft.

GRAHAM COUNTY

Gulf Coast Oil Co.'s No. 1 Johnson, C S half Sec. 27-8-25w. Shut down 4,340 ft.
Naylor et al's No. 1 St. John, NW SE SE Sec. 27-8-25w .. Rig.

GRANT COUNTY

McKenna et al's No. 1 Sullivan, NE cor. Sec. 12-29-38w .. Rig on ground.

GREENWOOD COUNTY

C. L. Mahan's No. 1 Binns, SE NW, Sec. 23-27-11 ..... Drlg. 775 ft.
John Harwood's No. 1 Good, C SW NW NE Sec. 36-25-9 ..... Drlg. 1,220 ft.
Mallory's No. 1 Denchfield, SE NW Sec. 12-27-9 ..... Shut down 660 ft.
Bundy, Smith & O'Neil's No. 1 Ford, NE NW Sec. 28-25-13 ..... Shut down 50 ft.
F. Konkay et al's No. 1 Rock, NW NE NE Sec. 7-27-12 .. Drlg. 1,820 ft.

HARPER COUNTY

Beeler et al's No. 1 Bear, C NE Sec. 21-31-6w ..... Shut down 1,830 ft.

HARVEY COUNTY

Gypsy Oil Co.'s No. 1 Hege, SE NW SE Sec. 13-22-2w .... Rig on ground.
Gypsy Oil Co.'s No. 1 Shine, SE SW, Sec. 26-22-3w .... Drlg. 1,144 ft.
Mrs. Gay et al's No. 1 Grove, C NW NE NW Sec. 29-23-1w ..... Shut down 3,610-14 ft.; show oil.

HODGEMAN COUNTY

Phillips Pet.'s No. 1 Hausman, NW NE Sec. 30-22-22w ... Abandoned 5,120 ft.

JOHNSON COUNTY

Forrester et al's No. 1 Yazel, CEL SE SE Sec. 18-12-22 .. 5-in. csg. 1,215 ft.

KIOWA COUNTY

McKenna et al's No. 1 Ralson, C NE Sec. 14-28-20w .... Rig.

LINN COUNTY

Ferguson & Hiatt's No. 1 Carple, NE SE SW Sec. 22-21-22 ..... Rig.

LYONS COUNTY

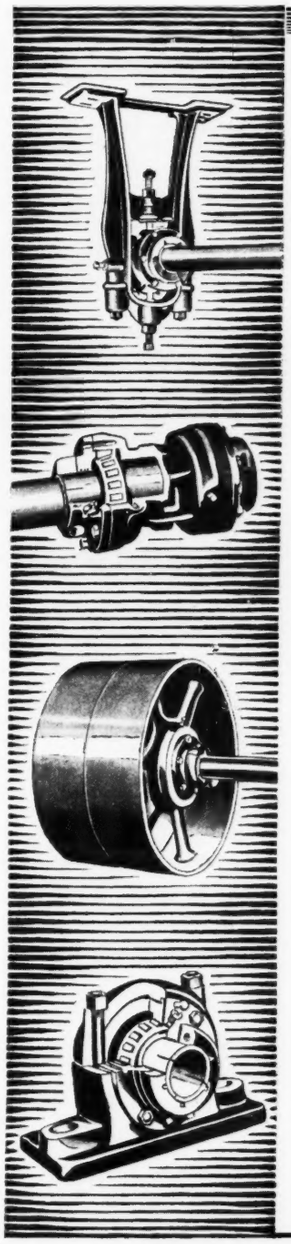
Aladdin & Phillips' No. 1 Ratcliff, SW cor. Sec. 29-20-10. Shut down 1,010 ft.

MARION COUNTY

Marshall et al's No. 1 Higgins, NE cor. Sec. 33-19-5 .... Rig.

MARSHALL COUNTY

Swicker & Sincox's No. 1 Remple, C N half NW Sec. 22-4-9 ..... Drlg. 1,000 ft.
Brazier et al's No. 1 Runkel, SE NW Sec. 13-2-6 ..... Rig.



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INCLUDING

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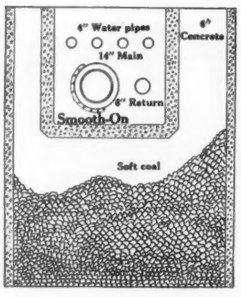

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5-1-30

McPHERSON COUNTY

Harry Skelly et al's No. 1 Neufeldt, SE NE Sec. 19-21-3w ..... Rig.
Galt-Brown et al's No. 1 Zeitlow, C NE SE SE Sec. 7-17-1w ..... Drlg. 2,702-31 ft. water; total depth 2,900 ft.; abandoned.
Kansas Oil Co.'s No. 1 Otto, SW NW Sec. 21-20-1w .... Shut down 3,644 ft.; P. B. 3,99[illegible] ft.
Milmac's No. 1 Decker, NW cor. Sec. 11-20-3w ..... Drlg. 2,325 ft.

MIAMI COUNTY

Clark's No. 1 Vaughn, SE SW Sec. 28-17-22w ..... Shut down 50 ft.

MORTON COUNTY

Hydraulic Oil Co.'s No. 1 State Land, NW SE Sec. 22-34-42w ..... Spudding.
Argus Prod. Co.'s No. 1 Low, C SE Sec. 16-33-40w ..... Rig on ground.

MORRIS COUNTY

Henderson et al's No. 1 Seisman, SW SE Sec. 24-16-9 .. Rig.
Urschell et al's No. 1 Scott, NE NW Sec. 6-16-6 ..... Drlg. 2,115 ft.

NORTON COUNTY

Richards et al's No. 1 Colby, Sec. 17-4-21w ..... Rig.

PAWNEE COUNTY

Skelly Oil Co.'s No. 1 Milhouse, C SE Sec. 34-23-17w .... Rig.

PRATT COUNTY

O'Haver & Jones' No. 1 Garacke, C NE SW Sec. 7-26-14w ..... Shut down 4,610 ft.
Wilcox O. & G. Co.'s No. 1 Bappin, SW NW Sec. 7-26-15w ..... Drlg. 3,235 ft.

RENO COUNTY

C. A. Cheney and M. M. Valerius' No. 1 Stevens, C NE SE NE Sec. 6-26-7w ..... Drlg. 2,155 ft.
Witt's No. 1 Olsen, C SE NW Sec. 14-22-6w ..... Shut down 4,076-84 ft. water; shut down.
Skelly Oil Co.'s No. 1 Birkett, NE NW Sec. 30-24-7w .... Wilcox sand 4,172-96 ft.; water; shut down; total depth 4,247 ft.; plugging back to 2,191 ft.

RICE COUNTY

Tatlock et al's No. 1 Ploog, C SW SE Sec. 33-18-9w .... Rig.
Burgher's No. 1 Fair, C SE NE NE Sec. 14-21-10w .... Shut down 3,545 ft.
Danciger et al's No. 1 Bell, C SW Sec. 16-19-8w ..... Shut down 3,492-98 ft.; water.
McCulloch et al's No. 1 Williams, C NE Sec. 35-20-8w .. Drlg. 2,235 ft.

RILEY COUNTY

Grey et al's No. 1 Smith, NE SE Sec. 30-6-6 ..... Shut down 1,970 ft.
Derby & Shaw's No. 1 Lindstrom, NE cor. Sec. 32-7-5e.. Shut down 2,245 ft.

ROOKS COUNTY

A. H. Kruger's No. 1 Steis, NW SE SW Sec. 12-9-16w .. Shut down 570 ft.

RUSH COUNTY

Danciger Oil & Refining Co.'s No. 1 Nave, NW cor. Sec. 26-17-17w ..... Total depth 3,606 ft.; shut down.

RUSSELL COUNTY

Austin Drlg. Co.'s No. 1 Rockfellow SE cor. Sec. 6-13-12w. Spudding.
Imo O. & G. Co.'s No. 1 Wambley, SE NW NE Sec. 7-14-14w ..... Rig.
Gilbreath et al's No. 1 Bratton, C NE Sec. 33-11-13w .... Shut down 1,010 ft.

SEDGWICK COUNTY

T. C. Johnson's No. 1 Petrie, SW SE Sec. 35-26-1w .... Drlg. 2,855 ft.
Tavender et al's No. 1 McLean, SE SW SE Sec. 23-26-1w ..... Shut down 975 ft.
McCulloch Oil Co.'s No. 1 Buckles, NW cor. SE Sec. 3-28-1w ..... Abandoned 1,115 ft.

SALINE COUNTY

Dixie Oil Co.'s No. 1 Miller, NE SE SE Seck 9-16-3w .. Rig.

SHAWNEE COUNTY

Jenkins & Scott's No. 1 Sherman, NW NE Sec. 28-10-15 ..... Shut down 985 ft.
Jenkins & Scott's No. 1 Haden, NE SE Sec. 8-12-14 .... Shut down 1,040 ft.

SHERIDAN COUNTY

Mandalin O. & G. Co.'s No. 1 Unknown, C SE SW SW Sec. 27-7-26w ..... Spudded; shut down.

STAFFORD COUNTY

Boucher Oil's No. 1 Christenson, NW cor. Sec. 22-22-11w. Rig.
Boucher Oil's No. 1 Groves, NE cor. Sec. 9-22-11w ..... Drlg. 720 ft.
Midwest's No. 36 Richardson, SE cor. Sec. 36-22-12w .... Spudding.
Gibson's No. 1 Mueller, C SW Sec. 11-23-14w ..... Water 4,008-10 ft.; underreaming 6-in. csg.

STEVENS COUNTY

Mangle et al's No. 1 Youngren, C SE NW Sec. 24-32-39w ..... Spudding; shut down.
Argus Prod. Co.'s No. 1 Hicks, C SE Sec. 12-34-39w .... Drlg. 1,200 ft.
Argus Prod. Co.'s No. 1 Bride, C SW Sec. 25-33-37w .... Drlg. 550 ft.
Argus Prod. Co.'s No. 1 Crone, C SE Sec. 19-32-37w .... Shut down 2,000 ft.
Argus Prod. Co.'s No. 1 Porter, C SE Sec. 21-32-37w .... Rig.
Argus Gas Co.'s No. 1 Christopher, C SW Sec. 11-33-39w.. Drlg. 2,346 ft.
Argus Oil Co.'s No. 1 Armstrong, CNL S half NW Sec. 16-34-39w ..... Top salt 2,652 ft.; drlg. 2,676 ft.; 3,000,000 ft. gas.
Argus Oil Co.'s No. 1 Parker, C SW Sec. 19-34-36w .... Rigging up standard tools 2,650 ft.
Argus Oil Co.'s No. 1 Smith, C SW Sec. 13-33-37w ..... Shut down 2,680 ft.; 5,000,000 ft. gas.
McNabb et al's No. 1 Ramey, C SW Sec. 1-33-38w .... Drlg. 2,675 ft.
Argus Gas Co.'s No. 1 Hobbe, C SE Sec. 17-32-37w .... Drlg. 2,650 ft.
W. Sidwell et al's No. 1 Kelly, SW cor. NE Sec. 16-34-38w ..... Shut down 1,600 ft.

SUMNER COUNTY

Hatfield's No. 1 Dauber, NE cor. Sec. 18-30-1w ..... Shut down 50 ft.
Slick et al's No. 1 Peasel, NW cor. Sec. 33-31-1w ..... Chat 3,651 ft.; drilled to 3,668 ft.; drlg. deeper to Wilcox at 4,070-85 ft; landing casing; Silicious lime 4,110-14 ft.; water; drlg. 4,120 ft.
E. K. Carey and Laredo Oil Co.'s No. 1 Welsch, SW SE Sec. 9-34-1e ..... Wilcox 4,003 ft; drlg. 4,100 ft; hole full water.
Davidson et al's No. 1 Strickland, SW cor. SE Sec. 12-35-1w ..... Rig.

TREGO COUNTY

Dixie and Amerada's No. 1 Reitmayer, C NE NE Sec. 19-14-21w ..... Drlg. 4,063 ft.; show water.
Day et al's No. 1 Guyler, SW NE NE Sec. 36-12-21w .... Drlg. 4,077 ft.

WOODSON COUNTY

Derby & Spencer's No. 1 Kingon, CNL SE NW Sec. 29-23-15 ..... Drlg. 1,523-40 ft.; 44 bbls.; completed.

WILDCAT OPERATIONS IN NEBRASKA

FRANKLIN COUNTY

U. R. Drlg. Co.'s No. 1 Brunkle (twin well), C NW SW NE Sec. 2-3n-13w ..... Rig.

CHASE COUNTY

Chase Pet. Co.'s No. 1 Ingold, C NE Sec. 24-6n-38w .... U.R. 5-in. csg.; T.D. 4,265 ft.

FURNAS COUNTY

Southwestern Pet. Corp. of Nebraska's No. 1 Montague, SE SW SW Sec. 28-1n-22w ..... Shut down 1,750 ft.
Graham Bros.' No. 1 Edwards, NW SW Sec. 13-2n-22w.. Shut down 3,250 ft.

PHELPS COUNTY

Trees Oil's No. 1 Bergan, Sec. 22-6-19w ..... Rig on ground.

RICHARDSON COUNTY

Norton et al's No. 1 Albin, NE cor. Sec. 26-1-14 ..... 10-in. csg. 1,600 ft.

ROCK COUNTY

North Central Dev. & Drlg. Co.'s No. 1 Leonard, SE cor. NE Sec. 14-32-18w ..... Drlg. 900 ft.

WEBSTER COUNTY

Mid-Kansas Exploration Co.'s No. 1 Platt, C SE one-half Sec. 3-1n-11w ..... Shut down 555 ft.

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Magnolia MAXIMUM MILEAGE Gasoline contains the greatest amount of power producing units that it is possible to completely evaporate in the combustion chamber of a motor. This is why it gives more miles per gallon. Proved by actual road test.

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TO ELIMINATE FUEL KNOCK

Due to its even-burning properties, the combustion of Magnolia ANTI-KNOCK Gasoline does not work against the up-stroke of the piston but attains its full force at the moment power should be applied to the down-stroke of the piston. It thus delivers knockless power.

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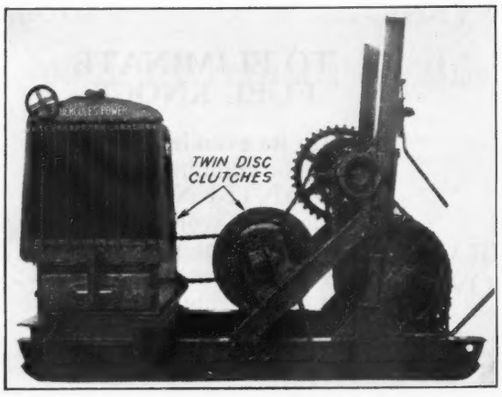
General Offices: Dallas, Texas



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TWIN DISC CLUTCHES

NEW LOCATIONS IN TEXAS PANHANDLE AND NORTH AND WEST TEXAS FIELDS

TEXAS PANHANDLE

For the Week Ending April 16

Carson County

Empire Gas & Fuel Co.'s No. 2 J. W. Fields, 990 feet south and east of the NW cor. of Section 13, Block 7, I.&G.N.

Gray County

Dixon Creek Oil Co.'s No. 2 W. W. Harrah, 330 feet south and west of the NE cor. of the SE of the NE of Section 150, Block 3, I.&G.N. Empire Gas & Fuel Co.'s No. 1 M. E. Jackson, 330 feet north and east of the SW cor. of the north 30.3 acres of the E half of Section 137, Block 3, I.&G.N.

Potter County

Canadian River Gas Co.'s No. 12 L. Bivins-A, 660 feet south and west of the NE cor. of Section 7, Block 018, D.&P. R.R.

Wheeler County

Johnson and others' No. 2 C. Hicks (Hall), 990 feet north and 890 feet east of the SW cor. of the SW of Section 49, Block 17, H.&G.N. Lone Star Gas Co.'s No. 1-A W. B. Wofford, 344 feet north and 660 feet west of the SE cor. of the SE of the SW of Section 68, Block 17, H.&G.N. Murchison & Fain's No. 1 J. D. Purcell, at the center of the NW of the NW of Section 50, Block 17, H.&G.N. Upham Gas Co.'s No. 1 Upham Gas Co., 660 feet north and 330 feet east of the SW cor. of the W half of the SW of the SE of Section 74, Block 17, H.&G.N.

NORTH CENTRAL AND WEST TEXAS

For Week Ending April 16

Archer County

Arkansas Fuel Oil Co.'s No. 2 L. F. Wilson, 1,120 feet south and 750 feet east of the NW cor. of the NW of the NE of Section 103, A.T.N.C.L. Hedrick-Camp Drilling Co.'s No. 3 T. B. Wilson, 150 feet north and 450 feet east of the SW cor. of their 60-acre lease out of the B. J. Howard Survey A-179. Shappell Oil Co.'s No. 48 J. L. Jackson,155 feet south and 450 feet west of the NE cor. of the SE of Section 5, Denton County School Land, League 3, A-117. E. J. Stump's No. 1 J. H. White, 450 feet north and 560 feet west of the SE cor. of Lot 9, Section 40, A.T.N.C.L. Trout & Julian Royalty Co.'s No. 1 J. D. Lyles, 269 feet north and 150 feet east of the SW cor. of the NE of the NE of Section 7, Hooper & Wade Survey A-234. Bridwell Oil Co.'s No. 1 R. W. Fails, 150 feet south and west of the NE cor. of the south 30 acres of the R. W. Fails 122.5-acre tract out of Section 2,419, T.E.&L. Bridwell Oil and Continental Oil Co's. No. 6 W. J. Logan et al, 1,338 feet north and 150 feet west of the SE cor. of its 72-acre lease out of Section 25, J. M. Taylor Survey A-648. L. T. Burns' No. 3 R. W. Fails, 150 feet north and west of the SE cor. of the north 30 acres of the south 60 acres of the R. W. Fails' 122.5-acre tract out of Section 2,419, T.E.&L. L. T. Burns' No. 4 R. W. Fails, 450 feet north and west of the SE cor. of the north 30 acres of the south 60 acres of the R. W. Fails 122.5-acre tract out of Section 2,419, T.E.&L.

Consolidated Oil Co.'s No. 4 H. F. Harmel, 150 feet south and 750 feet east of the NW cor. of the east 20 acres of the north 50 acres of the south 210 acres of Section 2,490, T.E.&L. Golding-Cochran and others' No. 2 M. Phillips, 150 feet south and west of the NE cor. of the south 50 acres of the east 60 acres of the west 110 acres of the M. Phillips 220-acre tract out of Section 6, B.B.B. &C., A-826. J. H. Massie's No. 7 J. T. Richardson, 150 feet north and east of the SW cor. of the north 20 acres of the west 40 acres of Section 14, South Anderson Ranch Subdivision. J. H. Massie's No. 8 J. T. Richardson, 150 feet north and east of the SW cor. of the west 10 acres of the south 20 acres of the west 40 acres of Section 14, South Anderson Ranch Subdivision. Oil Investment Co.'s No. 1 R. W. Fails, 150 feet north and west of the SE cor. of the north 50 acres of the R. W. Fails 122.5-acre tract out of Section 2,419, T.E.&L. Shappell Oil Co.'s No. 18 R. O. Prideaux, 2,450 feet south and 450 feet east of the NW cor. of the John Dorsey Survey A-121.

Baylor County

Consolidated Oil Co. and others' No. 15 W. H. Portwood, 450 feet north and 150 feet west of the SE cor. of the SW of Section 1,281, T.E.&L. G. R. Ridgeway and others' No. 1 F. Gatzki, 150 feet north and 450 feet east of the SW cor. of Section 2,477, T.E.&L.

Brown County

T. H. Drake and others' No. 1 S. I. Hunter, 200 feet south and east of the NW cor. of the east 100 acres of the S. I. Hunter 150-acre tract out of the S. Jones Survey No. 282. F. P. Hynes' No. 1 W. B. Strickland, 120 feet north and 150 feet west of the SE cor. of Section 35, Comal County School Land, No. 181. A. C. Hudson and others No. 1 J. J. Cates, 150 feet south and 600 feet east of the NW cor. of the south 20 acres of the north 60 acres of Section 39, Kerr County School Land No. 275.

Callahan County

Colgin & Johnson's No. 1 W. L. Cutbirth, 750 feet north and 1,150 feet east of the SW cor. of the W. A. Smith Survey No. 219. Humble Oil & Refining Co. and Bateman and others' No. 2 M. Alexander, 2,790 feet south and 1,170 feet west of the NE cor. of Section 23, E.T. R.R. R. C. McCarter's No. 1 Mrs. S. P. Long, 200 feet south and 1,000 feet east of the NW cor. of the P. H. Cammans Survey No. 214. Star Drilling Co.'s No. 1 E. L. Finley, 150 feet south and 575 feet west of the NE cor. of the SW of Section 75, Bayland Orphan Asylum Land.

Coleman County

Anzac Oil Co. and others' No. 2 J. McAdams, 1,000 feet south and 1,800 feet west of the NE cor. of the J. McAdams 263-acre tract out of the H. Frazier Survey No. 244. J. Connor, Trustee's No. 1 R. D. Fitzpatrick, 150 feet north and west of the SE cor. of the north 20 acres of Lot 16, J. A. H. Cleveland Survey No. 495. B. D. Dozier and others' No. 1 J. P. Mathews, 1,150 feet north and 1,050 feet east of the SW cor. of the C. Raquet Survey No. 43, being 200 feet south and east of the NW cor. of their 42-acre lease.

Comanche County

Humble Oil & Refining Co.'s No. 1 B. O. Wiley and others, 660 feet north and west of the SE cor. of the W half of the SE of Section 3, T.&N.O. McLester Oil Co.'s No. 1 G. T. Slone, 1,320 feet south and west of the NE cor. of the south 160 acres of the north 320 acres of Section 32, Deaf & Dumb Asylum Land.

Crane County

Texas Pacific Coal & Oil Co.'s No. 3 University Land, 2,310 feet north and east of the SW cor. of Section 34, Block 30, University Land.

Eastland County

Hoffman & Page's No. 5 O. E. Lyerla, 150 feet north and 956 feet east of the SW cor. of the O. E. Lyerla tract out of Section 27, Block 2, H.&T.C. J. L. Elliott's No. 1 Liberty Land Co., 175 feet north and 200 feet west of the SE cor. of the east 60 acres of the north 120 acres of the E half of Section 52, Block 4, H.&T.C. Golden Rule Oil Co.'s No. 1 C. M. McClelland, 330 feet south and west of the NE cor. of the W half of the NW of Section 466, S.P.R.R. Ed Keough's No. 2 C. C. Jones, 200 feet north and east of the SW cor. of the NW of Section 62, Block 4, H.&T.C.

Ector County

Gulf Production Co.'s No. 1 W. E. Connell-B, 330 feet north and 440 feet west of the SE cor. of the NE of Section 1, Block B-16, School Land. Same company's No. 3 State, 330 feet north and 1,320 feet west of the SE cor. of the south 160 acres of Section 1, Block 35, University Land. Same company's No. 3 State-A, 330 feet south and 1,320 feet west of the NE cor. of the N half of the

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Gasoline, naphtha and benzol are rendered non-inflammable when mixed with proper proportions of Dow Carbon Tetrachloride 99.9%. Manufacturers of these products find this particularly advantageous in reaching markets where it is necessary to provide a safety factor against fire.

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The OIL and GAS JOURNAL

S half of Section 2, Block 35, University. Amerada Petroleum Corp. and others' No. 2 University-B, 330 feet north and 440 feet west of the SE cor. of Section 2, Block 35, University Land. Cosden Oil Co.'s No. 2 Kloh & Rumsey, 330 feet south and 440 feet east of the NW cor. of Section 17, Block 44, Township 3s, T.&P. Cosden Oil Co.'s No. 3 Kloh & Rumsey, 1,650 feet south and 330 feet east of the NW cor. of Section 17, Block 44, Township 3s, T.&P. Humble Oil & Refining Co. and others' No. 9 Kloh & Rumsey-D, 1,659 feet north and 440 feet east of the SW cor. of Section 7, Block 44, Township 3s. Same company's No. 8 R. L. York, 990 feet north and 440 feet east of the SW cor. of Section 16, Block 44, Township 3s, T.&P. Humble Oil & Refining Co. and others' No. 9 R. L. York, 330 feet north and 440 feet east of the SW cor. of Section 16, Block 44, Township 3s, T.&P. Landreth Production Corp.'s No. 3 University-T, 330 feet south and 330 feet west of the NE cor. of Section 3, Block 35, University Land. Simms Petroleum Co. and others' No. 2 University, 1,650 feet north and 440 feet west of the SE cor. of Section 1, Block 35, University Land. Skelly Oil Co. and Republic Production Co.'s No. 1 B. W. McKenzie, 990 feet north and 330 feet west of the SE cor. of Section 28, Block 45, Township 2s, T.&P.

Glasscock County

F. H. E. Oil Co.'s No. 1 J. M. Sprinkles, 330 feet south and 1,650 feet east of the NW cor. of Section 163, Block 29, W.&N.W.R.R. World Oil Co.'s No. 1 W. P. Edwards, 330 feet north and 2,310 feet east of the SW cor. of Section 13, Block 34, Township 2s, T.&P.

Hood County

Branch Brothers' No. 1 B. F. Williams, 800 feet south and 4,550 feet east of the NW cor. of the heirs of James Cole Survey.

Palo Pinto County

Brazos River Oil & Gas Co.'s No. 1 W. T. McAvoy, 642 feet northeast of the SW line and 642 feet southeast of the NW line of the W. T. McAvvoy 154.5-acre tract out of the J. T. Smith Survey A-410.

Pecos County

Henshaw Brothers and others' No. 2 University, 330 feet south and west of the NE cor. of the SE of the NE of Section 24, Block 18, University. Gulf Production Co.'s No. 30 I. G. Yates, 3,300 feet north and 2,230 feet east of the SW cor. of the Runnels County School Land, A-2,169. Phillips Petroleum Co.'s No. 6 I. M. Ramsey, 2,722 feet south and 1,540 feet east of the NW cor. of Section 17, Block 194, G.C.&S.F. Shell Petroleum Corp.'s No. 8 M. A. Smith-D, 330 feet north and 1,650 feet east of the SW cor. of Section 24, Block 194, G.C.&S.F. Humble Oil & Refining Co.'s No. 1 H. L. Kokernot, 1,320 feet south and 1,467 feet east of the NW cor. of Section 227, Block 10, G.H.&S.A.

Shackelford County

Humble Oil & Refining Co.'s No. 1 G. R. Davis, 2,200 feet north and 150 feet west of the SE cor. of Section 44, Block 13, T.&P.

Stephens County

L. W. Hubert and others No. 1 M. A. Norton, 1,240 feet south and 880 feet west of the NE cor. of Section 1,039, T.E.&L.

Tom Green County

Cosden Oil Co.'s No. 1 J. Johnson, 150 feet north and 1,050 feet west of the SE cor. of the Joshua S. Grant Survey S-48,337. Ellis and others' No. 2 Lewis, 450 feet south and east of the SE cor. of the J. Webb Survey No. 77, and located in the Albert Black No. 75.

Ward County

E. J. Anderson and others' No. 1 Boogher & Merritt, 3,364 feet southwest of the NE line and 2,497 feet northwest of the SE line of Section 11, Block 5, H.&T.C. Gulf Production Co.'s No. 9 G. W. O'Brien et al, 330 feet south and west of the NE cor. of Section 16, Block F, G.&M.M.B.&A.

Wichita County

Arkansas Fuel Oil Co.'s No. 30 Kemp & Kemper-A, 150 feet south and 500 feet west of the SE cor. of Block 81, Kemp Wichita Valley Land and located in Block 82. Arkansas Fuel Oil Co.'s No. 42 Kemp & Kempner-B, 1,426 feet south and 1,710 feet west of the NE cor. of Block 82, Kemp Wichita Valley Land. Humble Oil & Refining Co.'s No. 24 W. H. Taylor, 150 feet north and 500 feet west of the SE cor. of Block 81, Kemp Wichita Valley Land.

Young County

Continental Oil Co.'s No. 1 G. R. Whiteley, 937 feet south and east of the NW cor. of Section 422, T.E.&L. Fain-McGaha Oil Corp.'s No. 1 Fain-McGaha Oil Corp., 1,700 feet south and 1,200 feet west of the NE cor. of Section 157, T.E.&L., being 10 feet north and east of the SW cor. of Lot 4, Block 4, Dunagan Subdivision, town of Olney.

Perkins & Cullum's No. 4 E. J. Dunagan, 750 feet north and 150 feet east of the SW cor. of the E. J. Dunagan 65-acre tract out of Section 157, T.E.&L. Same company's No. 5 E. J. Dunagan, 150 feet north and 750 feet east of the SW cor. of the E. J. Dunagan 65-acre tract out of Section 157, T.E.&L. Petroleum Production Co. and Madden's No. 6 O. Deitrich, 450 feet south and 1,050 feet east of the NW cor. of the south 60 acres of the north 75 acres of the O. Deitrich 150-acre tract out of the G. W. Stell Survey A-256. E. R. Riggs' No. 1 B. H. Larimore and others, 150 feet north and west of the SE cor. of the W half of the SW of Section 2,247, T.E. & L. M. Smith's No. 1 R. E. Hill, 500 feet south and 1,900 feet west of the NE cor. of Section 195, T.E.&L., being 150 feet north and 450 feet west of the SE cor. of their 20-acre lease. Wo-Mac Oil Co.'s No. 1 Stephens Roach Co., 1,500 feet north and 150 feet west of the SE cor. of the Stephens Roach Co. tract out of Section 1, B.B.B.&C., A-35. Kay and others' No. 1 Sam Ragland, 200 feet north and 850 feet east of the SW cor. of the west 40 acres of the south 120 acres of the Sam Ragland tract out of the J. W. Manning Survey A-188.

Corrections

In Coleman County: Atlantic Oil Producing Co.'s No. 3 H. T. Overall-B, 200 feet south and 350 feet west of the SE cor. of the J. H. Barkly Survey No. 701, and located in Section 9, Block 1, G.H.&H. Continental Oil Co. and others' No. 16 M. T. Overall, 200 feet south and 1,950 feet west of the SE cor. of the J. H. Barkly Survey No. 701 and located in Section 9, Block 1, G.H.&H. Atlantic Oil Producing Co.'s No. 1 M. T. Overall-B, 200 feet south and 950 feet west of the SE cor. of the J. H. Barkly Survey No. 701 and located in Section 9, Block 1, G.H.&H. Atlantic Oil Producing Co.'s No. 2 M. T. Overall-B, 200 feet south and 1,550 feet west of the SE cor. of the J. H. Barkly Survey No. 701 and located in Section 9, Block 1, G.H.&H. Continental Oil Co. and others' No. 14 M. T. Overall, 200 feet north and 1,550 feet west of the SE cor. of the J. H. Barkly Survey No. 701. Continental Oil Co. and others' No. 15 M. T. Overall, 200 feet north and 950 feet west of the SE cor. of the J. H. Barkly Survey No. 701.

In Wheeler County: Murchison & Fain's No. 11 I. Close, at the C of the NE of the NW of Section 77, Block 23, H.&G.N. Murchison & Fain's No. 9 I. Close, at the C of the NW of the SE of Section 80, Block 23, H.&G.N.

TROPICAL OIL SHIPMENTS

NEW YORK, Apr. 26.—Tropical Oil Co., Colombian producing subsidiary of the Standard Oil Co. of New Jersey, shipped a total of 20,094,044 bbls. of crude and refined oils during the year. Of this total, 18,600,467 bbls. consisted of crude oil, of which 12,466,913 bbls. came to the United States, 4,098,108 bbls. were shipped to Canada, 1,722,081 bbls. to Europe, and the balance to South and Central American countries.

Tropical Oil during the year shipped 319,145 bbls. of gasoline, 1,111,281 bbls. of fuel and gas oils, 62,583 bbls. of refined oil, and 568 bbls. of lubricating oil to South and Central American countries.

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PROTECTING ELECTRICAL EQUIPMENT IN THE OIL FIELDS FROM ACCIDENT

By B. M. Mills
Industrial Engineering Department, General Electric Co.

It is generally recognized that, where electric machinery is required to operate in the vicinity of inflammable gases, special precautions must be taken both in its construction and in its use to minimize the possibility of a fire or explosion caused by an arc or spark. Electric equipment so constructed will hereinafter be designated as "protected" as opposed to the "nonprotected" or "open type."

There is an increasing demand for protected oil field equipment in this country. Designs have been highly perfected and fairly well standardized although from time to time experience in the fields indicates improvements which are incorporated in new equipment to better their operation, to increase the safety factor, or to meet new conditions as they arise. It is the purpose of this article to describe the several forms which this protection may take, to discuss the advantages and limitations of each and to outline the application of the various forms to modern oil field equipment.

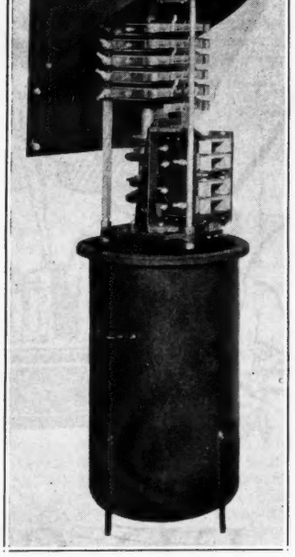


Figure 1—Vertical air-break cam-operated controller, with tank dropped.

One of the simplest methods of protection is to enclose the device in a light metal housing and to force through it air that is free from dangerous percentages of inflammable gases, thus preventing an inflammable mixture from coming in contact with a spark. This construction is particularly applicable to motors, where air for ventilation is needed anyway, and is sometimes used in refineries and similar locations when inflammable gases are encountered only in restricted and localized areas. In an oil field, however, gas may be encountered anywhere and air that is free from dangerous gases may not be readily obtainable. While methods are known by which safe air can be secured even from a gassy atmosphere, this method of protection is not at present in use to any great extent in the oil fields. In the future, as more power and consequently large equipment are required, a more extended use may possibly be found for it.

Second Method of Protection

The second method of protection is to immerse all contacts in oil so that a spark or arc cannot be exposed to the air and set fire to the gas. This method is not applicable to motors, for several reasons. Among these may be mentioned the difficulty of sealing the oil in, the destructive effect of oil on motor insulation, the great increase in friction or "drag" between the rotor and the stator and the impossibility of keeping the oil in close contact with the parts to be protected owing to the centrifugal action of the rotating parts. Fortunately, a far more effective and less troublesome method for motor protection is available. This will be discussed.

For control equipment such as oil circuit breakers, speed adjusting controllers, etc., oil immersion has been found practicable, affords adequate protection under correct operating conditions and is widely used. The principal disadvantages of the oil immersed device are (1) the necessity for frequent inspection to insure maintenance of the oil level which must be kept above the contacts; (2) the necessity for changing the oil at regular intervals on account of carbonization; (3) the inconvenience in handling, transporting and working on an oil immersed device, and (4) above all, the short life of contact tips working under oil, the oil having a tendency to confine the arc and cause localized heating injurious to the tips. These disadvantages are of little or no importance in connection with line switches, circuit breakers, etc., as these devices are operated but infrequently, have an oil level which is not too critical, and consequently give no trouble and require comparatively little attention.

For Speed-Adjusting Manual Controller

For the speed-adjusting manual controller, however, this is not the case. Such a device, oil immersed and used with either a drilling or a pumping motor must, for convenience in handling, be mounted horizontally with a very shallow oil pan. There is no room for an excess of oil and consequently the oil level must be maintained at a low height above the contacts. If the level is allowed to drop any great distance, the contacts are exposed to the air and may cause an explosion. For hoist duty in handling casing, drill pipe, rods or tubing, the controller may be operated almost continuously for long periods and will be called upon to make and break contacts during these periods at the rate of 15 to 40 or more times a minute.

Under these conditions the life of oil immersed contact tips is comparatively short. Under extreme conditions, the tips have been found to require dressing once a day and renewal every few days. It is the almost universal experience of operators and manufacturers that oil immersed copper contact tips last only one-tenth to one-fifteenth as long as corresponding tips operating in air with magnetic blowouts and in the same service. Special alloy tips have been found to have somewhat longer life when oil immersed, but their very high cost has prevented their use to any great extent. The seriousness of this short life of tips in oil will readily be appreciated when it is considered that not only is the maintenance expense greatly increased but there are also attendant and far more important losses of time and production incident to shutdowns for repairs.

Losses No Longer Necessary

Heretofore, these losses have been accepted as a necessary evil caused by the necessity for safety in operation. Now, however, a controller is available which has all the advantages of the air-break controller in reliability and freedom from trouble, while at the same time it affords protection at least equal to and probably better than the oil immersed controller. This device, which will be described in more detail later on, has been most favorably received by operators familiar with conditions as outlined above.

The third and last method of protection to be discussed, and the one which is recognized by such authorities as the United States Bureau of Mines and similar bodies as the best known for the purpose, is to enclose completely the device to be protected in a steel or heavy cast

iron case of sufficient strength to withstand the shock of an internal explosion of natural gas. It is impracticable to make a motor enclosure or a control enclosure gas tight, owing to the breathing action produced by expansion of the air heated when the motor is running, and contraction by cooling when the motor is shut down. A type of construction is therefore used which is designed with the object of preventing any heat generated inside the enclosure, from any cause whatsoever, whether sparking or explosion, from being transmitted to the outside in such intensity as to ignite any gases surrounding the equipment.

Could Withstand Explosion

The enclosures are of sufficient strength to withstand an internal explosion of natural gas. Wide machined flanges are used at all joints and at the point where the shaft passes through the enclosure. No gaskets are employed, as they deteriorate with age and might be inadvertently omitted after repairs or inspection. The electric currents are brought out of the enclosure by means of specially designed and insulated studs or through stuffing boxes. Bolts are closely spaced and bolt holes are bottomed in metal, or otherwise protected so that the accidental omission of a bolt will not leave an opening into the interior. In all respects, the construction of the enclosure conforms to the recommendations of the United States Bureau of Mines applying to apparatus permissible for use in gassy mines, and it is the best known for the purpose. Such construction is designated as "Class BM."[1]

Having described the various available means of protection, let us see how these are actually applied to modern oil field equipment. As far as the motors are concerned, the most complete protection is afforded by building them totally enclosed, using the special type of construction described above as "Class BM," but it is now customary on wound-rotor motors for oil field service to enclose only the collector rings in this manner. This not only is considered by the oil companies to be sufficient, but complies with the regulations existing in many fields. The only additional sparking, aside from that occurring at the rings and brushes, would be due to the rotor rubbing the stator or to the burn out of a coil or winding. These possibilities are comparatively so remote that the oil companies usually do not feel warranted in incurring the additional expense for total enclosure.

Enclosing Collector Rings

To enclose the collector rings only it is the practice to mount them on an extension of the shaft outside the bearing housing and to put them in a suitable steel or cast iron box having the special features described.

The heavy cast iron enclosure not only provides sufficient strength to withstand an internal explosion but also large heat storage capacity for heat generated in the rings on heavy overloads, thus helping to prevent injurious heating in the rings. The ribs or fins on the outside of the case not only afford mechanical reinforcement but on account of the large radiating surface exposed to the outside air, help to dissipate the heat rapidly.

We will now consider the protection of control equipment for wound-rotor induction motors. An oil well pumping motor control unit consists of an oil circuit breaker, a pole-changing switch, a speed-adjusting, reversing controller (manually operated) and a resistor, all mounted on suitable framework. A drilling motor control unit of the manual type consists of an oil circuit breaker, or magnetic primary switch, a controller and a resistor as above, and sometimes of an auxiliary controller and of a magnetic contactor type reversing panel, in addition. A slush pump motor control is similar to that for the drilling motor.

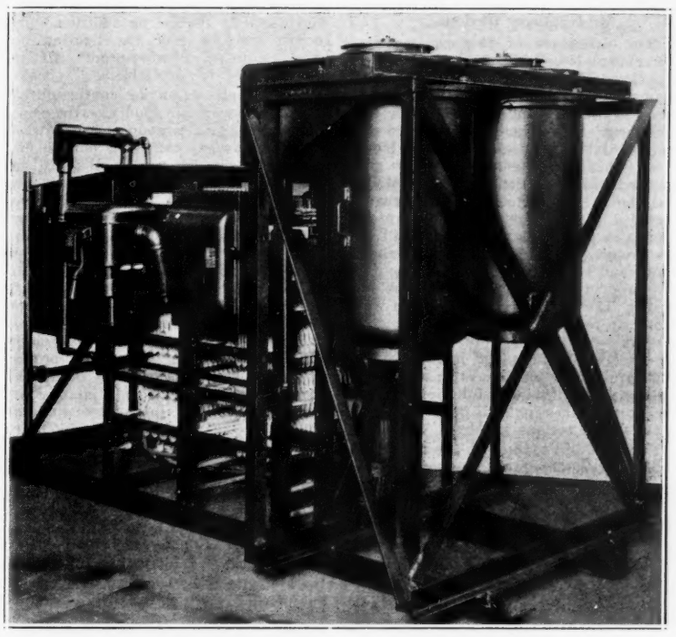


Figure 2—Drilling motor control unit, with the new controllers.

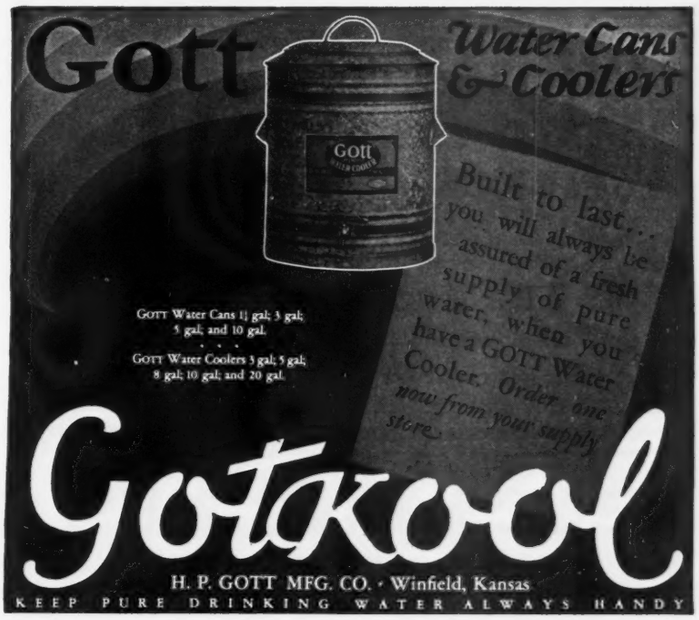
The circuit breakers and pole-changing switches, being already oil immersed, require no additional protection for operation in gassy atmosphere and as explained, have been found adequate in all ways for the service. The reversing panel, when used, is also made oil immersed as its bulk precludes the possibility of "Class BM" construction without materially increasing its weight and cost.

Eliminating Reversing Panel

Recent improvements in the design of controllers have made it feasible to handle the primary current to the motor in the controller and so to eliminate the reversing panel on motors up to and including at least 125 horsepower at 440 volts, so for many equipments the reversing panel is not required.

While some means of protection for the resistors might be desirable as an additional safety feature, oil field operators have not found this necessary. The standard General Electric oil field resistors are made up of very tough alloy grids which are practically unbreakable when properly installed, and are carefully selected as to current-carrying ca-

[1]Similar equipment built to the specifications of the Fire Insurance Board of Underwriters for operation in gassy places is designated as "Class BU."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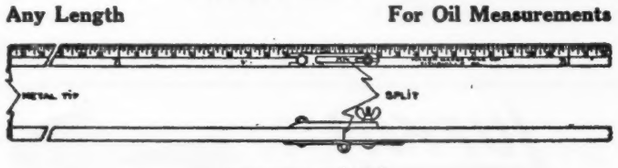

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pacity to prevent dangerous overheating even on heavy oil field loads. Steel resistors are also available, at some increase in cost, where the maximum protection against breakage is desired. Ordinary cast iron grids are not recommended on account of the greater possibility of accidental breakage and consequent sparking at the break. A suitable screen or expanded metal cover is provided over the top of each control unit to prevent damage to or short circuit of the grids caused by falling objects. Similar covers for protection of the sides may be provided if desired, but are rarely called for.

There remains to be described the protection of the controller or controllers. While in the past these also have been made oil immersed, this arrangement has the limitations and disadvantages outlined. To overcome these disadvantages, the General Electric Co. has a line of vertical, air-break cam-operated controllers, each in an enclosure of "Class BM" construction, incorporating the same principles of protection which have been so successfully applied to the motor collector rings for oil field service and to motors and control for use in gassy mines where the explosion hazard is at a maximum.

Advantages Obvious

The advantages of this construction are obvious. No oil is used in the controller, thus eliminating the possibility of an explosion, should the oil level be allowed to become dangerously low, or the equipment inadvertently be placed in service without any oil. Magnetic blowouts (which are ineffective under oil) may be added to the primary contacts and the life of all contact tips greatly extended. The outstanding advantage from the operator's standpoint will be the comparative freedom from maintenance and the decrease in lost time and lost production owing to shutdowns for repairs. These advantages have been well demonstrated by reports on equipment now in service. Therefore, no operator should hesitate to adopt it for use on new equipment or for substitution on older equipments in installations where the maintenance on oil immersed controllers is a serious problem.

Figure 1 shows one of the new controllers with the tank dropped. Figure 2 shows a drilling motor control unit with the new controllers. It will be noted that the working parts of the controllers are supported at the top from a cap plate which, in turn, is hung on the framework of the control unit. The enclosing case is made sufficiently strong to withstand the pressure of any internal explosion and, at the joint between the case and the cap plate, the flange is of sufficient width to cool any escaping gases below the temperature at which they would ignite gases in the outside atmosphere.

Bolts Specially Arranged

The enclosure is bolted to the cap plate by means of closely spaced bolts so arranged that the accidental omission of any bolt will not make an opening into the enclosure through which uncooled gases could escape. The leads are brought out at the top of the controller through suitable stuffing boxes and to a terminal board mounted on the control framework, the leads from the other parts of the control being brought to this terminal board for connection. As the enclosing case is fairly heavy, a suitable tank lifting device may be furnished to allow one man to lower and to raise the tank for inspection of the working parts.

The five preceding paragraphs have dealt principally with manual control. Practically all modern electric equipments for rotary drilling in this country have controls of the magnetic type, in which a contactor panel and a small master switch take the place of the manually operated cam controller. For this especially severe service, magnetic control has certain well demonstrated advantages. Among these may be mentioned greater ease of operation, automatic acceleration of the load and greater suitability for controlling the larger motors. The outstanding advantage of the open type magnetic control with air break contactors lies in its unusual freedom from maintenance troubles owing to the long life of the contact tips.

Bulk Precludes BM Construction

The protected form has an oil immersed master switch and an oil immersed contactor panel as its bulk precludes the possibility of "Class BM" construction. Consequently, it is subject to the operating limitations as previously described and reports on operation indicate that for use with motors of 150 horsepower and less, the manual control with "Class BM" controller is preferable from the maintenance standpoint. Occasionally, when local gas conditions permit, an open type magnetic control, installed some distance from the well, may be used with a protected motor and an oil immersed master switch.

We have seen that the modern protected oil well pumping or drilling equipment consists of an open motor with only the collector rings protected, and of a control in which all contacts are oil immersed or otherwise protected. With these are used standard oil filled transformers, oil immersed line disconnecting switches, standard primary cutouts, standard lightning arresters, etc., which usually require no additional protective features. For rig lighting circuits, approved "vapor-proof" fittings and switches are available.

For the protection (seldom required) of miscellaneous oil field electric equipment such as motors driving bandwheel pumping powers, gathering pumps, etc., the same general construction is employed as for drilling and individual well pumping equipment. Wound-rotor motors may be of the open type with collector rings in a "Class BM" enclosure. Squirrel-cage motors of the standard open type may be used without any additional protection, as such motors do not have collector rings. Where the highest degree of protection is desired, either form of motor may, in the smaller sizes, be of the totally enclosed, protected type. The motors on these miscellaneous applications are usually started and stopped only at infrequent intervals and, therefore, protection of control equipment by oil immersion of contacts has been found satisfactory.

Adequate Protection Given

Protected type equipments as described have been in use in the oil fields for many years and have been found to give adequate protection when properly maintained. The manufacturer of the equipment does his part when he builds it in accordance with the best known practices and sees to it that it leaves the factory in perfect operating condition. The actual conditions of operation are beyond his control and it is the duty of the operator to keep his equipment in safe operating condition.

Covers, when removed, should be carefully replaced without injury to threads or to machined surfaces. Holding bolts should be screwed tightly in place and none should be omitted. Resistor stacking and terminals should be inspected at regular intervals and kept tight to prevent localized heating. In oil immersed devices the oil level and condition should be frequently inspected and rigidly maintained. Special precautions should be observed to insure that such devices are filled with oil to the proper level when installed, as they are usually shipped dry from the factory, with the oil in separate containers.

The frequency with which oil should be renewed depends on the severity and frequency of the service. Oil circuit breakers and other devices not often operated may go from six months to a year or more without oil renewal, provided the oil level is maintained at the prescribed height as marked on the case. Oil-immersed controllers which are in continuous operation a large part of the time will require much more frequent inspection and renewals on account of carbonization and deterioration of the oil. Overload and undervoltage devices such as dashpots, relays, etc., should be kept free from gummy and sticky oil,

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as the failure of such devices to function might cause a spark or burning in unprotected parts of the equipment. Control frameworks and conduit should, after installation, be electrically grounded as a precaution against stray currents.

NATURAL GASOLINE PLANT PRACTICES

(Continued from Page 38)

renheit. When the oil temperature is well below this point, the gravity of the product will be higher and, consequently, the temperature of the dephlegmator should be brought to the highest point permissible within the limits of the endpoint of the gasoline. At times it pays to take the endpoint penalty, offsetting it by increased production.

The table showing the amount of oil to be circulated per gallon of potential gasoline at various operating pressures should be closely followed.

The table is based upon the saturation of oil not to exceed 6 per cent at 30 pounds pressure. Higher rates than shown may be circulated, provided the total amount run is within the limit of plant capacity, and does not increase the oil temperature.

As to the quality of absorption oil, we suggest one with a short boiling range, gravity around 36-40 degrees Baume, initial around 350 degrees Fahrenheit, and 550 degrees Fahrenheit endpoint.

It has also been found that if the lean oil is not completely stripped of gasoline in the evaporator, that is, if it tests between 1 per cent and 2 per cent over at 350 degrees Fahrenheit with an initial of about 250 degrees Fahrenheit, it constitutes a desirable medium with certain gases. Quite a number of ideas have been advanced on this subject.

Practice has demonstrated that oil containing these series will absorb and hold a much lighter series out of the wet gas than if completely stripped, and will result in greater production.

Test Should Be Run

After the plant operating pressures and temperatures have been decided upon and the plant operated for a day or two, a test should be run on the incoming gas and the percentage of the plant efficiency calculated against the net gasoline production.

The plant should show 95 per cent to 100 per cent efficiency under the Thirty Pound Charcoal Test, depending on the nature of the gas treated. The installation of a recompressor to take care of the vapors escaping from the fat oil, run down and storage tanks, is worth while.

It is advantageous to keep the pressure on the fat oil tank at around five pounds, to allow the fixed gases to escape, and to help the plant operate efficiently. As these gases entrain some lighter series of hydrocarbons, it develops that compressing them with other vapors to 75 pounds or 125 pounds and tntroducing the liquid product into the hot side of the condensing coils, increases the efficiency of the plant up to and above 100 per cent.

Particular pressures on storage tanks are not suggested, as they are usually governed by the plant loading facilities.

If the necessity to meet the 70 per cent at 200 degrees Fahrenheit specification is confronted, it is advisable to run some of the finished product together with reflux into the top of the evaporator, thus helping to pick up the lighter stable series that may otherwise escape.

In conclusion, we advise every plant operator to remember that plant efficiency should never be governed by stripping or nonstripping of oil, or by the test of the residue gas. Plant efficiency should be governed by the comparison of plant sales with plant potential production as shown by the best available method of testing the incoming wet gas.

A number of plants operating on gas showing a certain gasoline content per 1,000 feet are extracting more gasoline than the test shows and the dry gas shows some gasoline content. This is partic-

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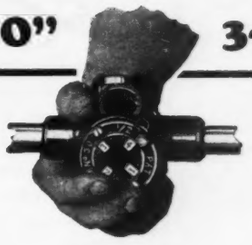

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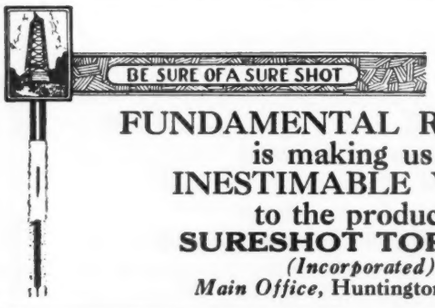
Report by
Donald C. Barton
Consulting Geologist and Geophysicist

Sole American Representative
Suss Visual—Suss Rybar Automatic Torsion Balances



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NATURAL GASOLINE PLANT DESIGN AND OPERATION
ANALYTICAL AND RESEARCH LABORATORIES
FRACTIONAL DISTILLATION ANALYSIS

See Classified Wants on Pages 126-127

ularly true where kerosene distillate is used as the absorbing medium.

SUGGESTIONS FOR EFFICIENT OPERATION

Off Colored Gasoline

Off colored product, if sulphur is not present, may result from the following causes:

(a) Too high dephlegmator temperature.

(b) Too low condensation pressure.

(c) Still or evaporator carrying over. In cases "a" and "b" adjust the temperature and pressure. Rerun the off colored gasoline. In case "c" find the cause of carrying over. If the evaporator carries over it may be due to the follwoing causes:

(a) Too much oil for the capacity of evaporator.

(b) Too low condensation pressure.

(c) Water in the oil entering the evaporator.

(d) Too much agitation steam.

Adjust both oil and pressure in cases "a" and "b." Locate the reason for the water trouble in case "c." Reduce agitation steam in case "d."

Water trouble in evaporator is generally caused by low still temperature, by mechanical troubles or from improper operation.

Mechanical troubles may develop in the steam coils. This can be verified by closing the valves to each coil and observing the results.

Water accumulates in the reflux tank. If the water is not properly watched and is permitted to enter the evaporator top section with the reflux, a drop in temperature will result and may cause carrying over.

If water accumulates in the oil it may be due to low still temperature, highly saturated agitation steam or too much agitation steam.

Sudden Drop in Production

If there is a sudden drop in production without any radical change in the incoming gas, giving due allowance for weather change, watch the temperature of the oil.

An increase of the temperature of the oil may be due to improper cooling caused by water pump trouble or by the accumulation of dirt in the distributing system. It is well worth while to clean the water distributing system at least once a month.

In some instances it was found that where the oil temperature increased, due to weather conditions, an increase in oil circulation would somewhat offset the loss of efficiency. However, the increased circulation will be of no benefit if it results in a further increase of the oil temperature.

When operating a vacuum collection system it is advisable to test the incoming gas for air or other foreign gas, as any appreciable quantity of air will reflect in the plant efficiency when checked against gas volume. The compressors will also be handling a larger volume than necessary. Air content should never exceed 8 per cent..

UNIVERSITY SECTION MARKERS

Cornerstone markers are soon to be placed at the corners of sections of land owned by the University of Texas in West Texas, and special markers have been designed by Frank Friend, land surveyor for the university, on which the number of the section and block number will be stamped. Conical foundations of concrete will stand 42 inches high. Where the sections are regular there will be a monument every 2 miles, and as there are 3,500 square miles in 17 West Texas counties belonging to the university, Mr. Friend estimates it will take about 1,000 monuments to efficiently mark the land.

LOUISIANA SEVERANCE TAX

WASHINGTON, D. C., Apr. 26.—Ohio Oil Co. lost its dispute in Supreme Court with State of Louisiana to prevent the imposition of a severance tax upon the production of oil in that State. The company claimed tax violated state constitution because rate of tax upon production in northern Louisiana was greater than that in southern Louisiana.

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CONSULTING GEOLOGIST
Specializing in the Texas Panhandle and Adjoining Territory
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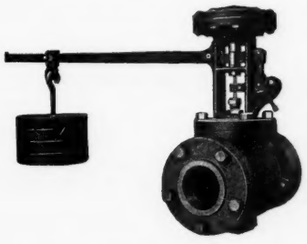

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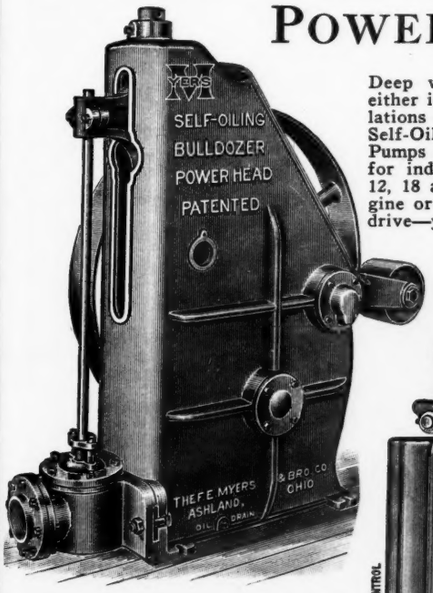

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